MAR 1 1928

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

Vol. 54 MARCH, 1928 No. 301

Contents

The Test of Fact Against Fiction in the Battle of Jutland.—Frothingham 169
A Contribution to Good Will.—Ihrig 182
A Naval Episode of 1899.—Craven 185
An Ancient Overseas Campaign.—Stiles 201
Acoustical Methods of Depth Finding.—Hill 212
Discussion 217
Professional Notes 221
Notes on International Affairs 239
Book Reviews 245
Secretary's Notes 249

Fuel Oil

Gas Oil

Diesel Oil

There is more power in

THAT GOOD GULF GASOLINE

and

SUPREME MOTOR OIL

GULF REFINING COMPANY

New York Boston New Orleans

Philadelphia Atlanta Houston

General Sales Office

PITTSBURGH, PA.

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

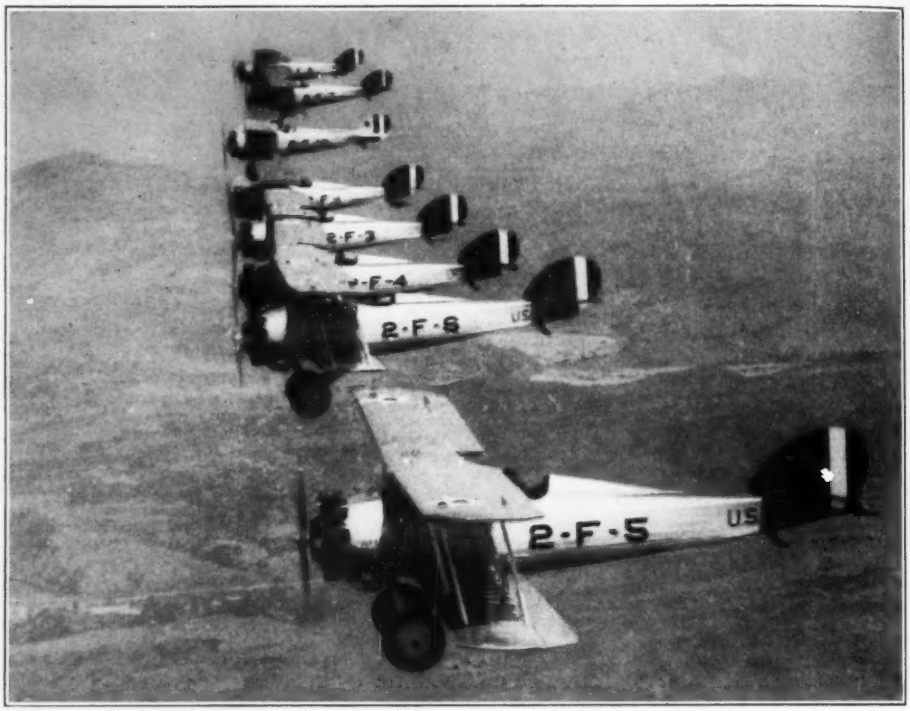
For the advancement of professional, literary and scientific knowledge in the Navy.

March, 1928

Edited by CAPT. R. C. MACFALL, U.S.N.
Ass't Editor—LIEUT. FELIX JOHNSON, U.S.N.

Associate Editors
COMMANDER F. W. ROCKWELL, U.S.N.
LIEUTENANT COMMANDER A. C. MCFALL, U.S.N.
PROFESSOR ALLAN F. WESTCOTT, U.S.N.A.
ASSISTANT PROFESSOR HENRY BLUESTONE, U.S.N.A.

United States Naval Institute
Publication Office: Menasha, Wisconsin
Editorial and Business Office: Annapolis, Maryland
Advertising Department: McGill Bldg., Washington, D.C.



26,672 HOURS
3,000,000 MILES

During the fiscal year 1927, 26,672 hours or approximately 3,000,000 miles were flown by Vought Planes in the U. S. Naval Air Service.

This makes another new operating record, exceeding the former record made by Vought Navy planes in 1926. It is ***more than twice as many miles as were flown in the planes of any other manufacturer,*** and it does not include the thousands of hours flown in Voughts in the U. S. Army Air Corps, the U. S. Coast Guard, the Cuban Air Service, the Peruvian Air Service, and other South American Air Services.

And with the present rapid delivery of *"Corsairs"*—the latest record-breaking high-performance Vought—to the Navy, another new operating record is assured for the year 1928.

CHANCE VOUGHT CORPORATION

LONG ISLAND CITY **NEW YORK**

Mention the Naval Institute—It Identifies You

March
Vol. No. 54, No. 3

Contents

1928
Whole No. 301

THE TEST OF FACT AGAINST FICTION IN THE BATTLE OF JUTLAND
By Captain Thomas G. Frothingham, U.S.R. 169

A CONTRIBUTION TO GOOD WILL
By Lieutenant Russell M. Ihrig, U. S. Navy 182

A NAVAL EPISODE OF 1899
By Captain T. T. Craven, U. S. Navy 185

AN ANCIENT OVERSEAS CAMPAIGN
By Commander W. C. I. Stiles, U. S. Navy 201

ACOUSTICAL METHODS OF DEPTH FINDING
By Lieutenant Harry H. Hill, U. S. Navy 212

DISCUSSION 217

PROFESSIONAL NOTES 221

NOTES ON INTERNATIONAL AFFAIRS 239

BOOK REVIEWS 245

SECRETARY'S NOTES 249

The writers only are responsible for the contents of their respective articles.

Editor, Captain R. C. MacFall; Assistant Editor, Lieutenant Felix Johnson.
Published monthly at 450 Ahnaip St., Menasha, Wis.
Executive, Editorial, and Business Offices, U. S. Naval Institute, Annapolis, Md.
Advertising Department, McGill Building, Washington, D.C.
Entered as second class matter at the post-office at Menasha, Wis., April 4, 1922, and at the post-office at Annapolis, Md., under Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1919, authorized March 13, 1922.
Membership dues (including PROCEEDINGS), $3.00 a year.
Subscription Rate, $5.00 a year. (Foreign postage, $1.00 extra.) Single copies, 50 cents.

Copyright, 1928, by U. S. Naval Institute

Officers of the Institute

President - - Rear Admiral EDWARD W. EBERLE, U. S. Navy
Vice-President - Rear Admiral LOUIS M. NULTON, U. S. Navy
Secretary-Treasurer - - - - Captain R. C. MacFALL, U. S. Navy

Board of Control

Rear Admiral EDWARD W. EBERLE, U. S. Navy *(Ex-officio)*
Rear Admiral LOUIS M. NULTON, U. S. Navy *(Ex-officio)*
Brigadier General GEORGE RICHARDS, U. S. Marine Corps
Captain W. G. DuBOSE, (CC), U. S. Navy
Captain GILBERT J. ROWCLIFF, U. S. Navy
Captain CHARLES E. SMITH, U. S. Navy
Captain G. V. STEWART, U. S. Navy
Commander R. M. BRAINARD, U. S. Navy
Captain R. C. MacFall, U. S. Navy *(Ex-officio)*

Past Presidents

Admiral DAVID D. PORTER, U. S. Navy, 1873
Rear Admiral JOHN L. WORDEN, U. S. Navy, 1874
Rear Admiral C. R. P. RODGERS, U. S. Navy, 1875-78
Commodore FOXHALL A. PARKER, U. S. Navy, 1878-79
Rear Admiral JOHN RODGERS, U. S. Navy, 1879-82
Rear Admiral C. R. P. RODGERS, U. S. Navy, 1882-83
Rear Admiral THORNTON A. JENKINS, U. S. Navy, 1883-85
Rear Admiral EDWARD SIMPSON, U. S. Navy, 1885-87
Rear Admiral STEPHEN B. LUCE, U. S. Navy, 1887-98
Rear Admiral WM. T. SAMPSON, U. S. Navy, 1898-1902
Rear Admiral H. C. TAYLOR, U. S. Navy, 1902-04
Rear Admiral C. F. GOODRICH, U. S. Navy, 1904-09
Rear Admiral RICHARD WAINWRIGHT, U. S. Navy, 1909-11
Rear Admiral BRADLEY A. FISKE, U. S. Navy, 1911-23
Rear Admiral WILLIAM L. RODGERS, U. S. Navy, 1923-24
Rear Admiral HENRY B. WILSON, U. S. Navy, 1924-26
Rear Admiral HILARY P. JONES, U. S. Navy, 1926-1928

Special Notice

Naval Institute Prize Essay, 1929

A PRIZE NOT TO EXCEED FIVE HUNDRED DOLLARS WITH A GOLD MEDAL, and a life membership in the Institute (unless the author is already a life member, in which case he will receive the commuted value thereof), is offered by the Naval Institute for the best essay submitted on any subject pertaining to the naval profession.

The following rules will govern this competition:

1. The award of the prize to be made by the Board of Control, voting by ballot and without knowledge of the names of the competitors.

2. Each competitor to send his essay to the Secretary-Treasurer in a sealed envelope marked "Prize Essay Contest." The name of the writer shall not appear on the essay, but instead thereof a motto. Accompanying the essay a separate sealed envelope will be sent to the Secretary-Treasurer, with the motto on the outside and the writer's name and motto inside. This envelope will not be opened until after the decision of the board. Essays must be received on or before January 1, 1929.

3. In addition to the "Naval Institute Prize," one or more essays may receive "Honorable Mention," if of sufficient merit to justify that award; or, in the event that no essay is adjudged of sufficient merit to receive the "Prize," the best essay submitted may receive "Honorable Mention" in lieu thereof.

4. In case one or more essays receive "Honorable Mention" the writers thereof will each receive a prize, the amount of such awards to be decided by the Board of Control in each case.

5. Announcement of awards will be made as soon as practicable after January 1, 1929.

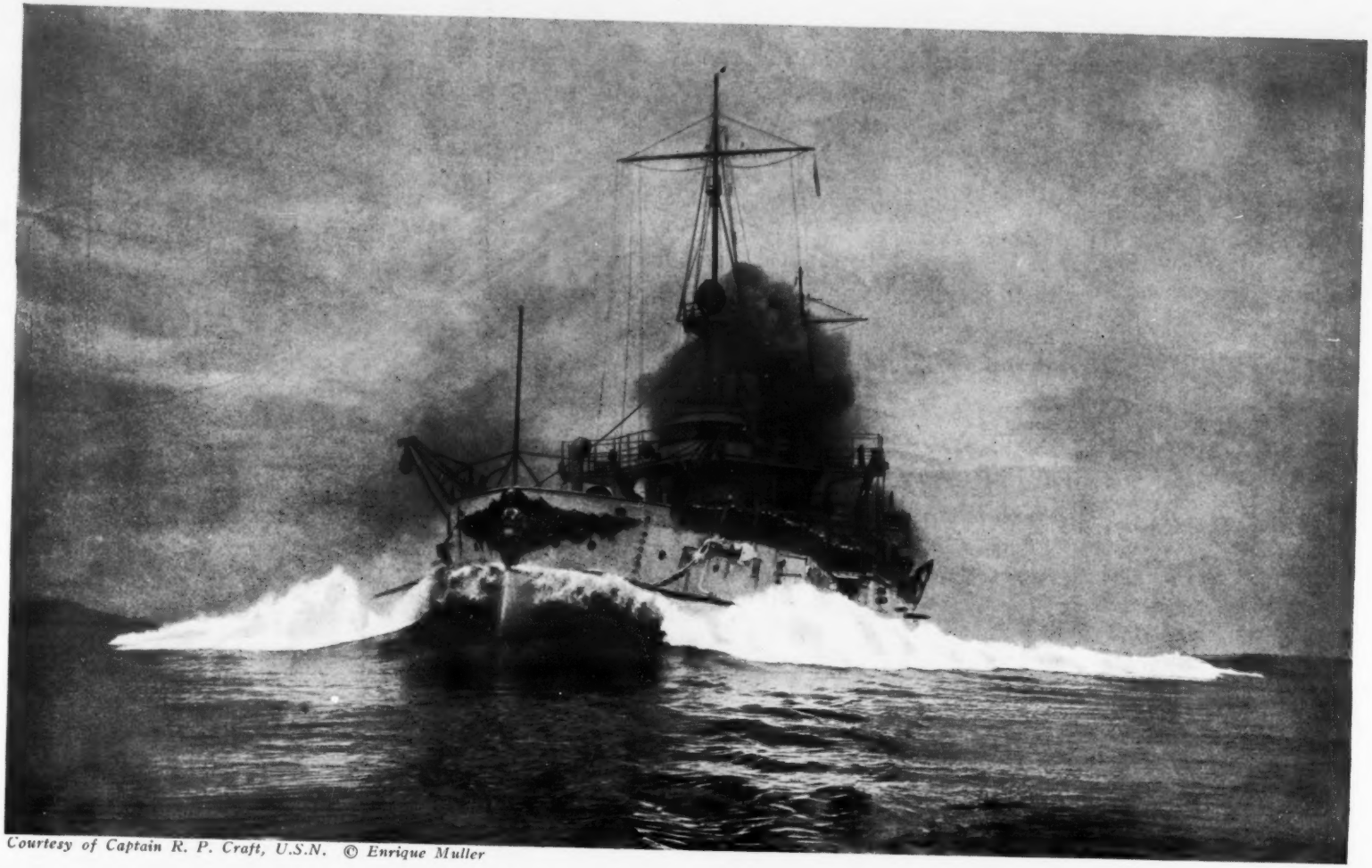
6. Essays awarded the "Naval Institute Prize" or "Honorable Mention" will be published in the NAVAL INSTITUTE PROCEEDINGS as soon as practicable. Essays not awarded a prize may be published at the discretion of the Board of Control, and the writers of such articles shall be compensated at the established rate for articles not submitted in competition.

7. Articles shall be limited to eleven (11) printed pages in the PROCEEDINGS (approximately 8,000 words), but shorter articles will receive equal consideration.

8. In the event of the prize being awarded to the winner of a previous year, a gold clasp suitably engraved will be given in lieu of the medal.

9. All essays must be typewritten, double spaced, and submitted in duplicate.

R. C. MACFALL
Captain, U.S.N., Secretary-Treasurer



Courtesy of Captain R. P. Craft, U.S.N. © *Enrique Muller*

U.S.S. "CONNECTICUT" ON BUILDER'S TRIAL

Courtesy of Lieutenant Commander R. Wainwright, U.S.N.

"SHOOTING THE SUN"

Lieutenant Commander (now Rear Admiral) George C. Day, U.S.N., who was navigator of the Fleet Flagship, U.S.S. *Connecticut,* and consequently of the Fleet, on the cruise around the world, 1907-09.

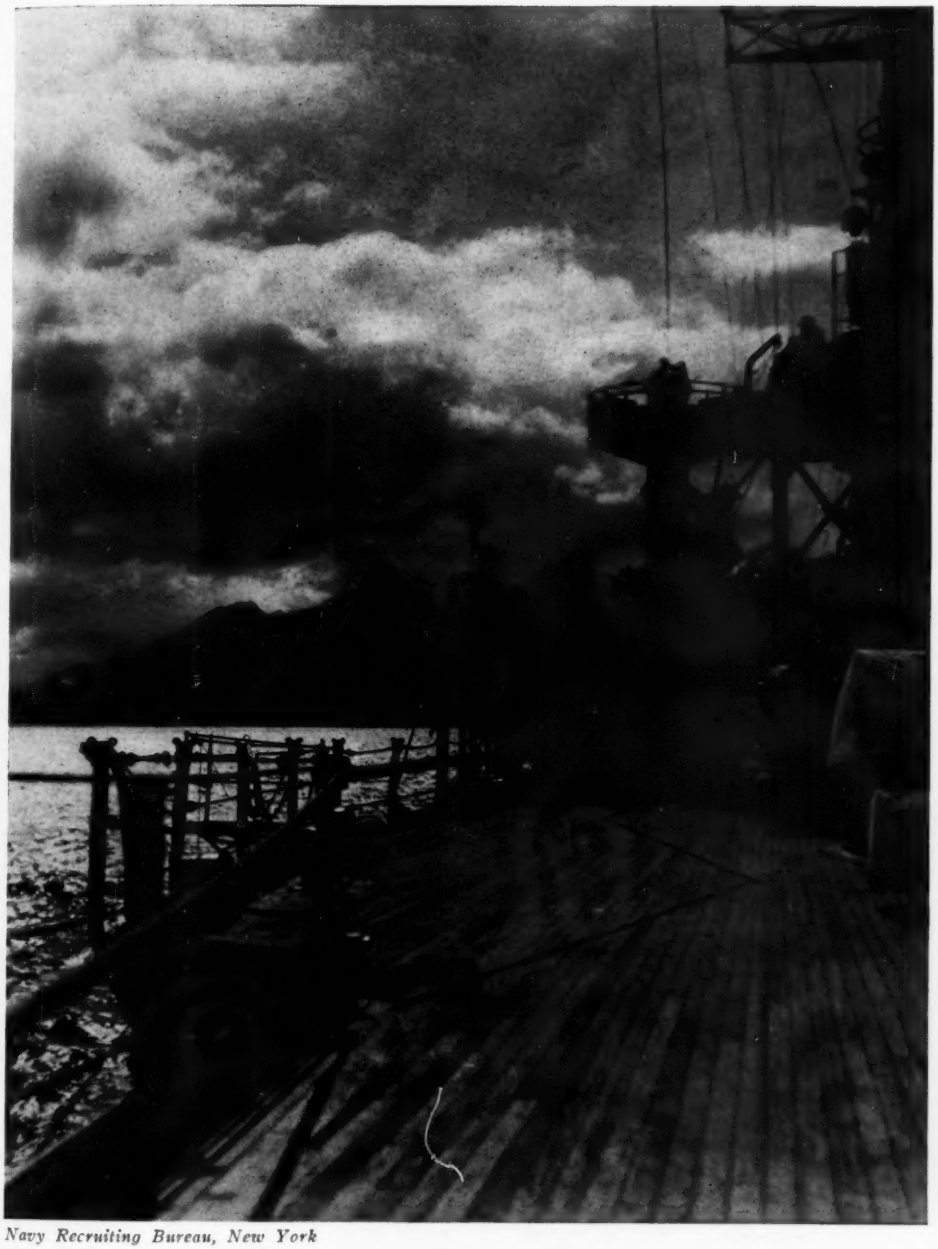
U.S.S. "CONNECTICUT" ON BUILDER'S TRIAL

Courtesy of Captain R. P. Craft, U.S.N. © Enrique Muller

Courtesy of the Pan-American Union

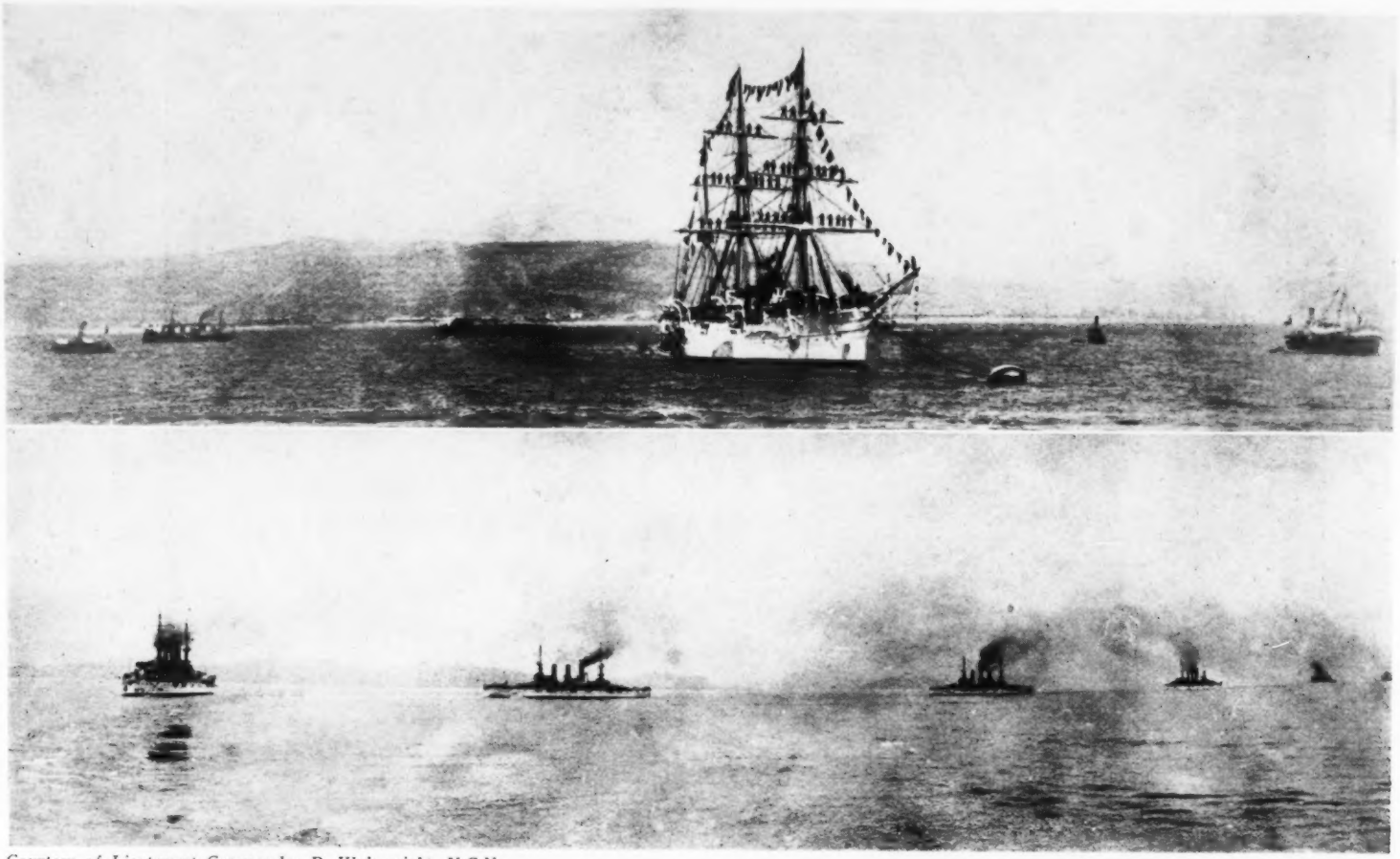
U. S. Squadron Entering Punta Arenas Harbor, February, 1908

Punta Arenas is the "half-way house" for vessels passing through the Straits of Magellan. Vessels eastbound usually stop here to rest after an arduous day's sailing through the western reach. The reach from Punta Arenas to the Atlantic is shorter and much easier. Westbound traffic stops at Punta Arenas for the night, in order to get an early start during daylight hours for the hazardous run from there to the Pacific. Many of the officers and men of the fleet got their first view of gold mining at Punta Arenas, for mining operations were being carried on less than a mile from the water-front.



Navy Recruiting Bureau, New York

THE U.S.S. "UTAH" PASSING THROUGH THE STRAITS OF MAGELLAN



Courtesy of Lieutenant Commander R. Wainwright, U.S.N.

UPPER: PRESIDENT OF CHILE REVIEWING U. S. FLEET, 1908, ABOARD THE "JENERAL BAQUEDANO," VALPARAISO, CHILE
LOWER: FLEET TURNS NORTH AFTER PASSING IN REVIEW, VALPARAISO, CHILE, 1908

UPPER: PRESIDENT OF CHILE REVIEWING U. S. FLEET, 1908, ABOARD THE "JENERAL BAQUEDANO," VALPARAISO, CHILE
LOWER: FLEET TURNS NORTH AFTER PASSING IN REVIEW, VALPARAISO, CHILE, 1908

Courtesy of the Pan-American Union

WHARVES, VALPARAISO, CHILE

Courtesy of the Pan-American Union

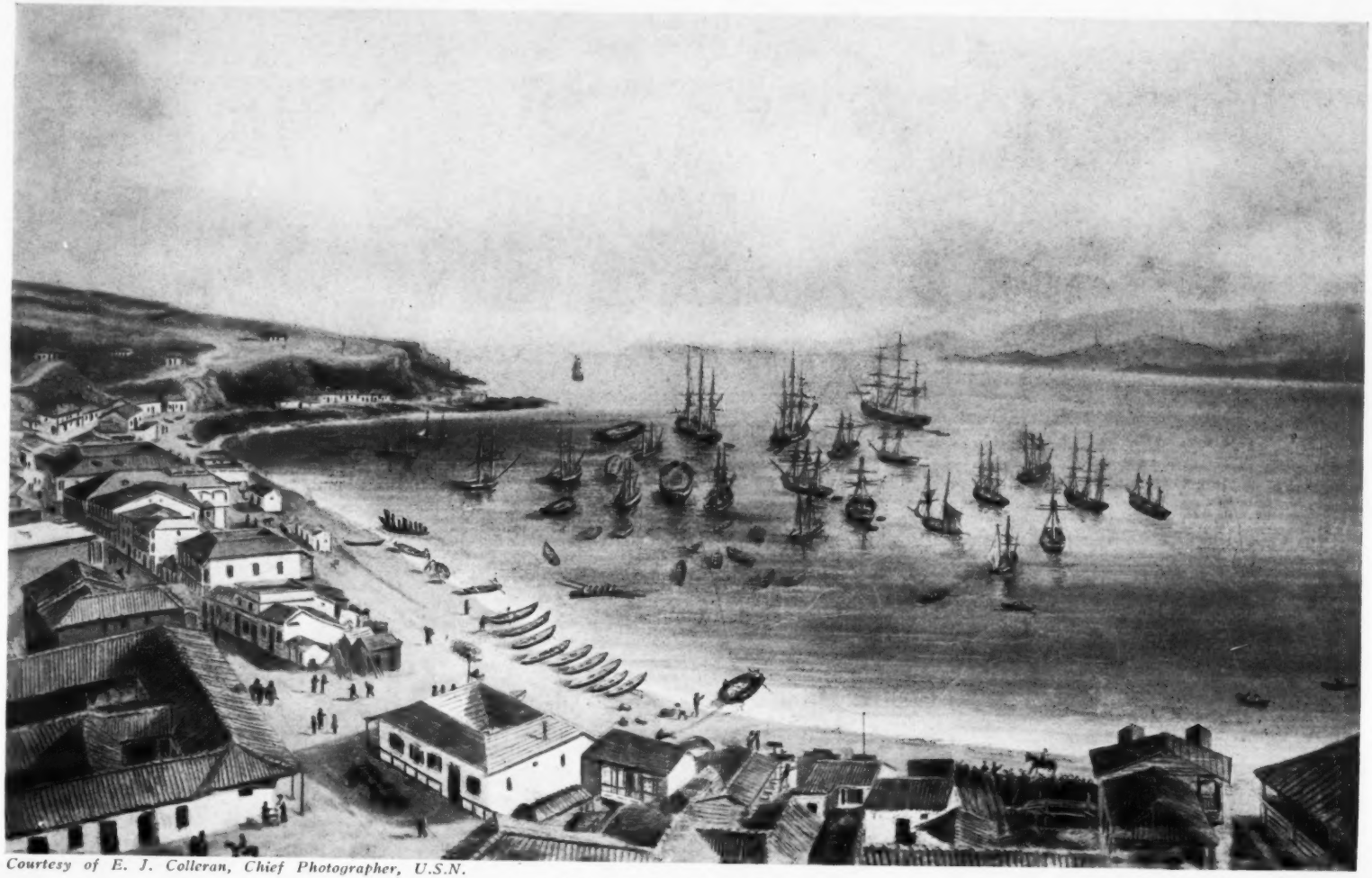
PLAZA DE LA INTENDENCIA AND GOVERNMENT PIER, VALPARAISO

Courtesy of the Pan-American Union

PLAZA DE LA INTENDENCIA AND GOVERNMENT PIER, VALPARAISO

Courtesy of E. J. Colleran, Chief Photographer, U.S.N.

ROADSTEAD OF VALPARAISO
From an old painting at the Naval Academy.



Courtesy of E. J. Colleran, Chief Photographer, U.S.N.

ROADSTEAD OF VALPARAISO
From an old painting at the Naval Academy.

Courtesy of E. J. Colleran, Chief Photographer, U.S.N.

ROADSTEAD OF VALPARAISO
From an old painting at the Naval Academy.

UNIV. OF MICH.

The Age of Oars

(Courtesy of Lucky Bag Committee Class of 1926, U. S. N. A., Copyrighted)

UNITED STATES
NAVAL INSTITUTE
PROCEEDINGS

Vol. No. 54, No. 3 MARCH, 1928 *Whole No. 301*

The Test *of* Fact Against Fiction *in the* Battle *of* Jutland

By CAPTAIN THOMAS G. FROTHINGHAM, *U.S.R.*
Author of *The Naval History of the World War*

AUTHOR'S NOTE: Authorities quoted in the text indicated as follows: Admiral Jellicoe (J), Vice Admiral Beatty (B), Admiral Scheer (S).

THE time has now come to cast aside a mass of fiction relating to the Battle of Jutland. The present situation is an object lesson of the need of this. For we have seen the British controversies over the great naval action fanned into new flames by the publication in England of the "Harper Report." The report, in itself, has given no excuse for the renewal of the controversies, as this document from the past does not contain any inflammable material. It is a very mild and harmless product, with nothing that gives any reason for the turmoil. But everything published as to Jutland is used by the disputants for the one purpose of providing fuel for their quarrels.

The history of the new contribution to the Jutland disputes goes back into the past. This report, *The Record of the Battle of Jutland,* was prepared under the direction of Admiral (then Captain) J. E. T. Harper, R.N., by order of the British Admiralty in 1919. Upon completion in 1920 it was not given to the public. Instead of this, the British Admiralty published at the end of 1920 a blue book, *The Battle of Jutland,* which contained the official dispatches of 1916. As their explanation for publishing this blue book instead of the Harper Report, the British Admiralty gave to Parliament a statement (November 22, 1920): "The reason for not publishing Captain Harper's summary of events was . . . . that a record, based on British Official evidence only, would inevitably present a one-sided version . . . ." Admiral Harper has also published, as a comment on his report, a controversial booklet, *The Truth about Jutland,* and in this he implies that his report has been withheld from the public all this time because Admiral Beatty has been First Sea Lord of the Admiralty until this year.

In this regard, it is unfortunately true that, without any rhyme or reason, the bitter controversies over Jutland have become a blind quarrel between the partisans of Jellicoe, on the one hand, and the partisans of Beatty on the other. But it was also a true statement for the British Admiralty to give out in 1920 that any British narrative of Jutland compiled from "British Official evidence" in 1919 was bound to be "one-sided." This was not for controversial reasons, but because no one in the British Fleet had understood the tactics of the German Fleet in the Battle of Jutland. As a result, the British were so lacking in knowledge of what the Germans were doing at the most important stage of the action, that it was impossible in 1919 for the British Admiralty to compile an adequate narrative of the real course of the battle. For this

reason, aside from any question of personal influence, it was not a matter of holding back the facts, as has been charged. It was a case of not having the true facts to give out, no matter whether anyone wanted to hold them back or not.

The Harper Report is the product of that situation of 1920. It is merely a summary, taken with a commendable absence of bias, from the British Official reports of 1916, which were published in full in the Admiralty's blue book of 1920. For this reason the Harper Report was compiled from insufficient data. This precludes it from being an adequate account of the Battle of Jutland. And it adds nothing at all to our present knowledge of the great naval action because its material was included in these published British Official reports of 1916. Consequently, the claim of partisans that withholding the Harper Report has had a mysterious influence against getting at the truth must be considered one of the fictions of Jutland.

The Battle of Jutland, in regard to the movements of both the German Fleet and the British Fleet, was first correctly analyzed in the United States. For a long time no advance in this direction was made in Great Britain, and it was mainly through the efforts of Lord Sydenham, by means of questions in the House of Lords, that the British Admiralty at length conformed to this analysis. On March 2, 1922, the representative of the British Admiralty, in answer to one of Lord Sydenham's questions in the House of Lords, stated that information had been received, "which had rendered necessary a revision of the charts . . . . as a result of the further information, and in order to elucidate the course of the action more fully, the scope of the work had been considerably extended." As a result, the British Admiralty made drastic alterations in their charts and conceptions of the situations in the action.

These extensive changes were embodied in Sir Julian Corbett's last volume of "Naval Operations," which was completed just before the death of this official historian of the British Admiralty. Not satisfied with this, in 1924 the British Admiralty published it own *Narrative of the Battle of Jutland,* with these changes made a part of the account of the action and shown on the charts. But, most unfortunately, those in control of preparing this official *Narrative* also included in the text of their account of the battle a constant stream of comment, which went far beyond explanations and into controversies. This was so marked a fault, in what should have been an unbiased official narrative of facts, that it impaired greatly the value of the Admiralty's own statements. The result was that, instead of giving a suitable official basis for agreement, the Admiralty's *Narrative* had just the opposite effect, for it provided new subjects of controversy between the warring factions in the British Navy, and only increased the outburst of recriminations which blurred the facts. This year the Harper Report is made the excuse for more quarrels.

Things have now come to a pass where there is real need to get back to common sense. And the best way to accomplish this —strange as it may seem that one is obliged to say so—is the simple process of keeping in mind that the Battle of Jutland itself was actually fought by the rival leaders and naval forces of May 31, 1916—and not by anyone else! And the battle took place on that day, under the conditions existing on that day—and not on any other day in history! There has been too much straying away from the actual terms of the game that was played out then and there in the North Sea—and we must get back to thinking in these terms. If we insist on this basis of truth, we will get rid of an accumulation of imaginary situations which have been created since the battle, distortions of facts, gameboard speculations, versions artificially adapted to *ex parte* special pleadings—the mass of fiction which has been woven about the Battle of Jutland. By this use of common sense, in harking back to the men of the battle and to the day of the battle, all the controversies over Jutland will be automatically thrown out of court for they have been founded on fiction—not on facts. The actual facts as to the events of the Battle of Jutland are so self-evident that there are no grounds for controversies. Partisans have only managed to keep the quarrels alive by clinging to discredited tales, which are as extinct as the dodo. It is only the clamorous reiteration of these fictions that has caused confusion as to the facts, and this artificially produced confusion is the only "mystery" of Jutland. The "mystery" tale is a myth

that has no excuse for existence. For the actual trend of the action, over its whole great area, was matter of fact to a degree rare in history.

The true events of the Battle of Jutland are made all the more clear because both the British Fleet and the German Fleet followed courses of action carefully laid down in advance. Consequently we have the unusual basis for knowledge, that, in addition to its being a battle of May, 1916, fought by the men of May, 1916, the Battle of Jutland was controlled by preconceived tactics which had been adopted for use in May, 1916. And the characteristics and influences, which have been read into the texts of controversial theses since that time, have nothing to do with the actual situation of May, 1916.

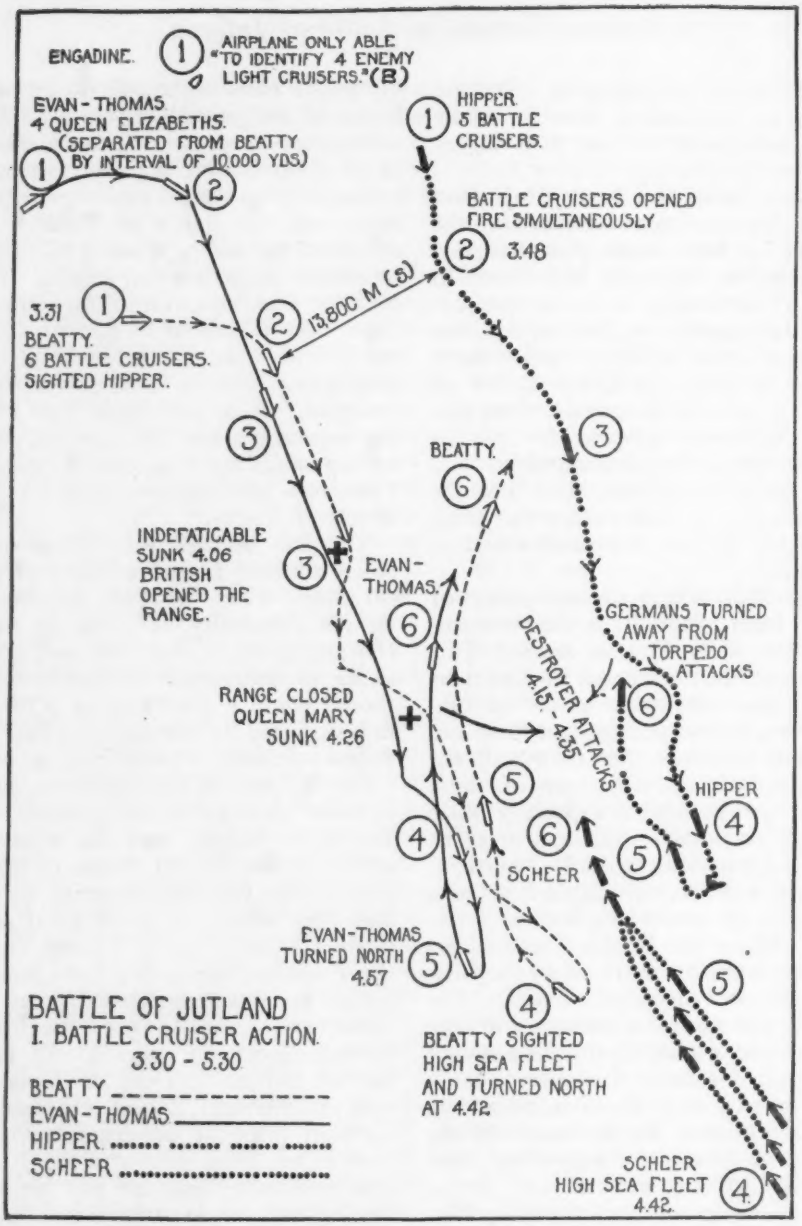
On the British side, a definite policy of caution had been adopted for the "contemplated conduct of the Fleet in action." This was founded on the theory that the Germans would "rely to a very great extent on submarines, mines and torpedoes, and there can be no doubt whatever that they will endeavor to make the fullest use of these weapons in a fleet action, especially since they possess an actual superiority over us in these particular directions." This cautious policy for the British Battle Fleet was made a matter of record in a written statement prepared by the British Commander-in-Chief, and formally approved by the British Admiralty on November 7, 1914. The quotations are from this statement and note of approval, and a most significant sentence was: "If, for instance, the enemy battle fleet were to turn away from an advancing fleet, I should assume that the intention was to lead us over mines and submarines, and should decline to be so drawn."

This predetermined cautious policy, adopted by the British Admiralty for the conduct of the British Battle Fleet in action, controlled absolutely the British tactics in the North Sea to the end of 1916. There were three occasions which offered the possibilities of actions between capital ships in the North Sea, and each time this cautious policy directed the movements of the British naval forces. In the Dogger Bank action (January 24, 1915) Vice Admiral Beatty, in command of the Battle Cruiser Fleet, which was pursuing an inferior force of German battle cruisers, suddenly turned his whole force eight points—an act which broke off the pursuit—because he thought a submarine was present. It was a false alarm, as no *U*-boats were with the German battle cruisers. The second meeting of the capital ships was the Battle of Jutland, and the effects of this adopted policy of caution will be shown in the ensuing article. The third occasion was the sortie of the German High Seas Fleet of August 18, and 19, 1916, when the British Commander-in-Chief reported that it was "unwise to pass over the waters occupied," as he had again been obliged to use caution because "the ease with which the enemy could lay a submarine trap for the Fleet had been demonstrated on the nineteenth of August." (J)

The full text of this statement of the policy adopted for the conduct of the British Battle Fleet, with the approval of the British Admiralty, is given in the *Naval History of the World War*, and anyone desiring to understand the Battle of Jutland should study it carefully, as perhaps never in history did the conduct of a fleet in action follow so closely a predetermined course.

On the part of the Germans, the change in naval strategy which brought about the Battle of Jutland was the result of the action of the United States in the *Sussex* case. The German Imperial Government had been about to break away from the pledges exacted by the United States after the *Lusitania* crisis, and had planned a resumption of unrestricted *U*-boat warfare. However, in April, 1916, the inexcusable torpedoing of the *Sussex* had brought a sudden ultimatum from the United States, and, as Admiral Scheer expressed it, the German Imperial Government "decided to give in and sent orders to the Naval Staff that submarine warfare was henceforth to be carried on in accordance with Prize Law." This enforced suspension of *U*-boat warfare made it incumbent upon the German naval Commander-in-Chief to do something with the German Battle Fleet, and the sortie into the North Sea was the result.

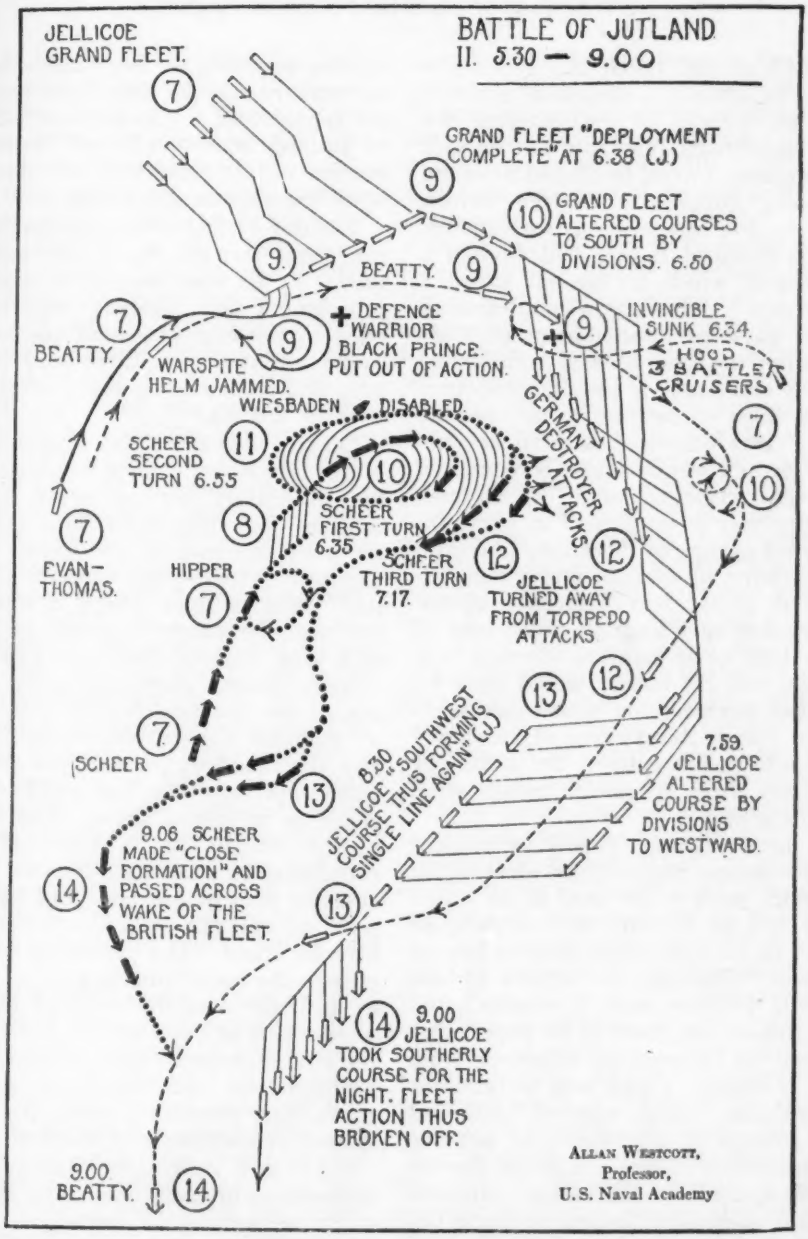
Admiral Scheer's object was "to call out a display of English fighting forces as promised by Mr. Balfour," and to compel them "to give battle under conditions favorable to us." (S) Of course Admiral Scheer could not hope to engage the greatly superior British Grand Fleet in a set battle of broadsides. Consequently, the German Com-



DIAGRAMMATIC CHART OF BATTLE CRUISER ACTION

I. Battle Cruiser Action, 3:30-5:30 P.M.

(1) 3:31 P.M. Beatty sighted Hipper. Airplane from *Engadine* had not been able to find enemy heavy ships.
(2) 3:48. Battle cruisers engaged.
(3) 4:06. *Indefatigable* sunk. British opened the range.
(4) 4:42. Beatty sighted advancing High Sea Fleet and turned north, column-right-about.
(5) 4:57. Evan-Thomas turned north. Hipper had also turned north ahead of the High Sea Fleet.
(6) 5:30. Beatty's British advance force pursued by united German forces of Hipper and Scheer.
(7) 5:40. From this time Beatty at full speed was turning to easterly courses in search of Jellicoe's Grand Fleet—Hipper was turning to close Scheer—Scheer reducing speed to gather his fleet. Hood had overrun far to eastward.
(8) 6:02. German Fleet turned to port, "To render assistance to the *Wiesbaden*" (S).
(9) 6:16. Jellicoe signaled Grand Fleet to deploy on port wing column, Beatty passed across to eastward. *Defence, Warrior, Black Prince,* put out of action. *Warspite* out of action. Evan-Thomas



DIAGRAMMATIC CHART OF FLEET ACTION

II. MAIN ENGAGEMENT, 5:30-9:00 P.M.

turned to take position astern of Grand Fleet. Hood turned back to take position ahead of Beatty. *Invincible* sunk at 6:34.

(10) 6:35. Scheer executed first ships-right-about in smoke screen. Grand Fleet on course to south (6:50). British battle cruisers out of control on turn.

(11) 6:55. Scheer made second ships-right-about toward the British Fleet, with attacks of destroyers in advance.

(12) 7:17. Scheer made third ships-right-about, to westward. Jellicoe turned away to avoid torpedo attacks.

(13) 8:20. Last clash of heavy ships. Jellicoe in single line to southwest at 8:30.

(14) 9:00. British moved to southward, breaking off action. Germans made "close formation" (S) at 9:06, and passed across the wake of the British in the night. Action of fleets ended.

mander-in-Chief had taken the precaution to prepare in advance a means of evasion, in case that, instead of encountering the expected "conditions favorable" to himself of weaker enemy forces, he should meet the overwhelming superiority of the British Battle Fleet. For escape in any such sudden emergency, Admiral Scheer had devised a fleet maneuver which he himself called a "swing-around." This was a countermarch of a line of warships, effected by preparatory and executing signals, so well coördinated that it was practically a simultaneous turn of all the ships in the line to an opposite direction. This maneuver was to be executed under the cover of smoke-screens, and it had been rehearsed until the German Battle Fleet was letter-perfect in performing the novel change of direction. Admiral Scheer's scheme of evasion under the concealment of smoke was especially advantageous because such a simultaneous turn of warships had been hitherto deemed impracticable, and his enemy would have no idea of what was going on behind the clouds of smoke. With this system of rehearsed tactics the Germans entered the Battle of Jutland, and these rehearsed tactics were used in the action.

From the foregoing, it will be evident that both sides had preconceived ideas of the tactics which were to be used in an action of fleets. As to *U*-boats and aircraft, all early tales of their activities are now known to be false. The British reports of the presence of *U*-boats were erroneous,[1] and Admiral Scheer has stated in his report that he received no information whatever from outlying *U*-boats. There was an airplane carrier with the British advance force, but the first attempt at observation by airplane was an immediate failure and ended the use of British aircraft in the battle. Admiral Scheer had originally planned to bring out airships as scouts, but after waiting several days for them to be able to take the air, he made his sortie without them. In the afternoon of May 31 these German airships attempted "long-distance reconnaissance" (S), but Admiral Scheer's report has definitely disposed of them for the day of the battle by stating: "They did not succeed in taking any part in the action which developed soon afterwards, nor did they observe anything of our Main Fleet or of the enemy, nor did they hear anything of the engagement." Consequently the Battle of Jutland was not affected by either submarine or aircraft—and all those having other impressions are mistaken.

The day of the battle was cloudy, but the sun shone through the clouds most of the time. At no time was there anything approaching a sea. Visibility was reported as good in the first stages of the action, but later in the afternoon, there being little wind, mist and smoke hung heavy over the surface of the sea.

On that day there was a situation in the North Sea which cannot be obscured by all the misleading fictions which have been written. Irrespective of the movements of the rival commands, the broad condition existed that the weaker German Fleet found itself in a position where it must engage the overwhelmingly superior British Fleet at a long distance from the shelter of the German bases. Any evasion by flight was out of the question for the German Fleet, as Admiral Scheer had brought out with him the squadron of slow pre-dreadnaught battleships, and this had reduced his fleet speed to seventeen knots. The fleet speed of the British Battle Fleet of powerful dreadnaughts was twenty knots. Yet this superior fleet of greater speed failed to impose its strength upon the weaker fleet of inferior speed. The preceding sentence expresses the underlying tragedy of the Battle of Jutland[2]—and the sense of that failure, which must be explained, is one reason why the British accounts have to deal with justifications and recriminations, which have made their versions a series of arguments instead of statements of facts.

As is well known, on May 31, 1916, the dispositions of each commander had resulted in an advance force thrown out ahead of the main body of the fleet. Vice Admiral Beatty's British advance force, six battle cruisers and four twenty-five knot battleships of the *Queen Elizabeth* type, came in contact with Vice Admiral Hipper's German advance force of five battle cruisers. This contact brought on the Battle of Jutland—and from its very beginning there arose clouds of fiction.

[1] ". . . . although many submarines were present."—Admiral Jellicoe, Report

[2] "In our long and glorious naval history nothing directly comparable with this tragedy stands recorded."—Lord Sydenham

Nothing could be clearer than the facts as to the opening of the action. It was all "daylight plain sailing"—and these facts are matters of indisputable official record. Yet the opening moves have been wreathed in a highly dramatic invention, which exceeds poetic license. The actual events were far from being dramatic in their casual sequence. At 2:20 P.M. Vice Admiral Beatty had been informed of the presence of enemy ships. At 2:33 P.M. he had signaled "Admiral intends to proceed at twenty-two knots." At 2:39 P.M. he had information that "the enemy force was considerable" (B) and "that it would be impossible to round the Horn Reef without being brought into action." (B) At this time, therefore, Beatty knew he was in an interposing position, and he had attained that advantageous position without the use of high speed. For until this stage, his speed had been only nineteen and a half knots. "Course was accordingly altered to the eastward and northeastward." (B) At 2:52 P.M. Beatty made signal for a southeasterly course. At 3:01 P.M. he signaled to alter course to east. At 3:12 P.M. he signaled, "Admiral intends to proceed at twenty-four knots." At 3:21 P.M. he signaled, "Course northeast, speed twenty-three knots." At 3:27 P.M. he signaled, "Assume complete readiness for action in every respect." At 3:30 P.M. Beatty, in his own words, "increased speed to twenty-five knots and formed line of battle" to engage.

Consequently, it is a matter of unquestionable record that, from the time of the first information of the presence of enemy warships (2:20 P.M.) it was over an hour before Beatty "increased speed to twenty-five knots" (B) to engage the enemy. And yet, at this time (3:30 P.M.) the four powerful *Queen Elizabeth* battleships under Rear Admiral Evan-Thomas, "who had conformed to our movements, were now bearing northnorthwest 10,000 yards" (B). This statement in Beatty's report meant only one thing, that throughout this long period of maneuvering at moderate speed Beatty had kept Evan-Thomas "conforming" (B) to his various changes of courses, and separated from his battle cruisers by this interval of 10,000 yards. And, in all this time, Beatty had not made one signal to bring this strongest part of his command closer to his battle cruisers. The result was that these four battleships were so far away to north-northwest that they were useless in the ensuing engagement to south-southwest. We are thus forced to the conclusion that Beatty thought his six battle cruisers would be able to take care of the situation without assistance.

It would seem difficult to go far wrong in describing such simple movements of ships. Yet an altogether imaginary tale of a sudden impetuous dash at high speed by Beatty's battle cruisers to intercept the Germans, has been industriously put into circulation, and still finds credence today. In 1919 this invention was exploited in a book which was given a cachet of artificial importance by the fact that Beatty wrote an introduction for it. This was *The Battle of Jutland* by Commander Carlyon Bellairs, R.N., and it was frankly an indictment of the British Commander-in-Chief, with a contrasting laudation of Beatty. The following travesty on the actual facts will show the extent to which this was carried in the book: "Beatty, having brought the enemy into action in a position advantageous for cutting them off from the Horn Reef, now reduced speed from twenty-seven knots to twenty-one knots to enable the four *Barhams* and their small craft satellites to come up." A comparison with the actual records given above of the speed of Beatty's battle cruisers in his opening maneuvers, will show how utterly contrary to facts was this version. Yet this has persisted to an astonishing extent. Five years afterwards Admiral Bacon, in *The Jutland Scandal,* wrote: "He, full of ardor, raced away. . . . . This was the action of an impulsive fighter, not that of an experienced admiral." And, in this year 1927, Winston Churchill has joined the chorus: "But the facts, when at 2:32 Beatty decided that the enemy was present in sufficient strength to justify turning the heavy ships about, made it his clear duty to steam at once and at the utmost speed in their direction. All that impulse, all that ardor give, was no doubt present in the Admiral's mind. . . . . ."

To show the nonsense of all this, it is only necessary to point out that, after the time given (2:32 P.M.), fifty-eight minutes elapsed, and there were four changes of courses at moderate speed, before Beatty "increased speed to twenty-five knots" (B) at 3:30 P.M. to engage. But, regardless of

the facts, thus fiction has been reiterated by the partisans of Beatty, with unfounded aspersions upon the conduct of Evan-Thomas, in order to give the wrong impression to the public that Beatty's engaging with his battle cruisers alone was an act of impulsive and heroic "ardor."

This first phase of the Battle of Jutland must be regarded as an action between rival battle cruisers, as Beatty, by thus allowing his command to remain divided, had committed himself to a fight in which the far distant battleships of Evan-Thomas would not be able to take any effective part. Under these conditions, the test at issue was clear. With Beatty in his interposing position, Hipper could not flee to his main body. He must fight his way in a stand-up battle to a safe junction with the German Battle Fleet. The whole question was whether Beatty would be able to dominate Hipper in this stand-up battle and prevent him from joining Scheer.

In pre-war calculations of strength, Beatty's six battle cruisers would have been assigned a superiority of thirty-six to twenty-five over Hipper's five battle cruisers. Consequently, on this basis of calculation, Beatty was justified in believing that his British battle cruisers would be able to defeat the German battle cruisers. But, like many other "on paper" calculations made in the World War, the forecast was not borne out by the event. For it was the British naval force that suffered repulse. The rival battle cruisers opened fire "practically simultaneously" (B) at 3:48 P.M. The trend of the action was south-southeast as Hipper did not edge away but maintained his fight on this general course, which was in the direction of the advancing German High Seas Fleet, although this was not apparent to Beatty at the time.

The result was not long in doubt. The Germans at once showed they were superior in range finding. They were able to "get on to their target and establish hitting in two or three minutes of opening fire." (J) In contrast, the British were not at high efficiency in gunnery, and overestimated the opening ranges. At 4:00 P.M. the *Lion* was heavily hit, and one turret was disabled. Immediately afterwards German salvos penetrated the *Indefatigable* and she blew up. After this unexpected *contretemps,* Beatty turned away until he was out of range of the German guns (4:05 P.M.). He closed the range again and the fighting was renewed, only to meet another British disaster, as at 4:26 P.M. the *Queen Mary* met the same fate by explosion after penetrating hits. It was thus decisively settled that Hipper was to fight his way to a prompt junction with the main German Battle Fleet, and that Beatty had failed to stop him by means of the British battle cruisers only. In this phase of the action there had been destroyer attacks by both sides, but they had not affected the screened capital ships.

These were the actual events of Beatty's failure against Hipper. Yet, in accounts of this episode, the same dramatic element has been laid on with an unsparing trowel. Witness this rhapsody in Churchill's book, as to "the Vice Admiral pacing the bridge among the shell fragments rebounding from the water, and like Nelson of old in the brunt of the enemy's fire. . . . . But the movement of these blind, inanimate castles of steel was governed at this moment entirely by the spirit of one man. Had he faltered, had he taken less than a conqueror's view of the British fighting chances, all these great engines of power would have wobbled off in meaningless disarray." It is difficult to believe that these mock heroics could have been written seriously, but they are typical of the state of mind of the Jutland partisan.

Hipper thus won his way to a perfect junction with Scheer's advancing High Sea Fleet. The sudden appearance of the German Battle Fleet was a complete surprise to the British, and Beatty signaled by flags: "Alter course in succession sixteen points to starboard." This flag signal was seen by Evan-Thomas, when the *Lion* passed to the north (4:53 P.M.) after the battle cruisers had made their turn. Evan-Thomas then turned his four battleships to the north astern of Beatty's battle cruisers, and, as Admiral Scheer expressed it, "thereby played the part of cover for the badly damaged cruisers." The united German fleet followed, and the action "developed into a stern chase" (S).

What had been Hipper's object was now transferred to Beatty. Beatty must make every endeavor to gain a prompt junction with Jellicoe's Grand Fleet, which was hastening from the north at utmost fleet speed, in order to impose its overwhelming force upon the Germans. Just as the British had

been ignorant of the approach of the German High Seas Fleet, so the Germans were ignorant of the approach of the British Grand Fleet. But an efficient joining of forces proved to be beyond the ability of the British. It was only too evident that methods of communication had not been devised which would insure that coördination of the whole British force. In fact, with the uncertain information Beatty was able to give Jellicoe, any such prompt junction could only have taken place through a miracle of luck. In the actual event, there was an error of over eleven miles to the eastward in location.

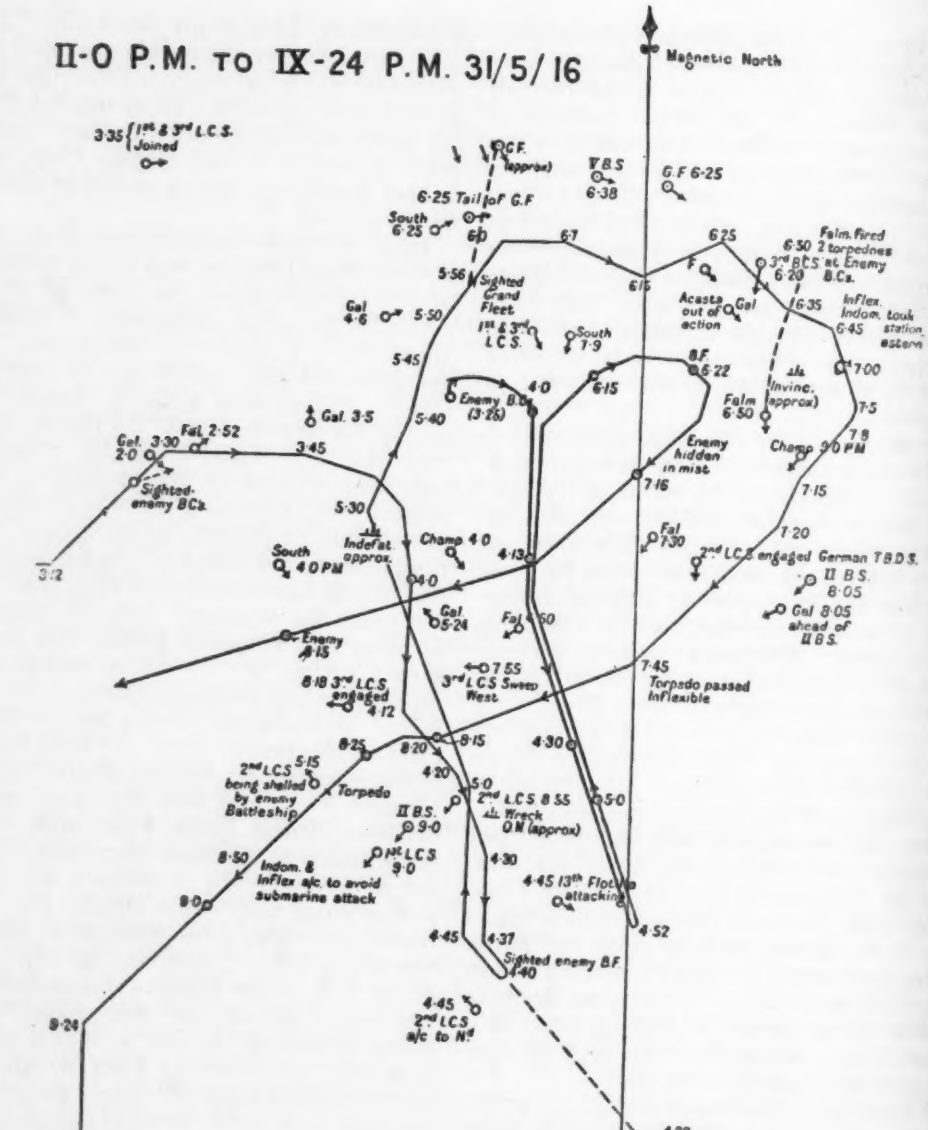
If the picture at this stage is visualized, we have no further difficulty in understanding the essentials of the Battle of Jutland. The weather had grown thick, with mist and haze hanging over the sea. We must not think in terms of small dimensions but must visualize the long miles of ships in formation, wreathed in smoke, over the vast areas of maneuver. The two great fleets were approaching one another under conditions that preordained the result. On the British side there was uncertainty for the Commander-in-Chief, not only as to the position of his own fleeing advance force, but also as to the location of the enemy—and always dictating his movements was the prescribed cautious policy for closing an enemy fleet. On the other hand, for the German Commander-in-Chief, the German battle cruisers had been turned back to close his Battle Fleet, and his whole united command was in hand and well disposed to carry out his long rehearsed maneuver for turning away in a concealing smoke screen when suddenly confronted by a superior enemy.

These being the actual conditions at the time, nothing can be further from the mark than to say that Beatty "delivered the German Fleet, and led it into the jaws of the trap." Yet these are familiar reiterations in the Jutland controversies. It is now evident that the Germans were never in danger of being "entrapped." As was inevitable from the British errors and uncertainties in location, the meeting of the fleets was a scene of confusion and again there were heavy British losses. Three armored cruisers were put out of action,[3] "not aware of the approach of the enemy heavy ships." (J) The battle cruiser *Invincible* also met the same fate which had destroyed the other two British battle cruisers. However, the British losses had not impaired the overwhelming superiority of the British Fleet, and Scheer would have had no chance in a battle of broadsides.

However, when the German Commander-in-Chief found that he was in the presence of this superior enemy, he made use of his carefully prepared maneuver of evasion (6:35 P.M.) and, in his own words, "the swing-around was carried out in excellent style." Scheer was certainly justified in adding the statement that "the trouble spent was now well repaid," for this rehearsed maneuver of evasion was completely successful. The German Fleet was at once relieved from all pressure of the enemy, as it disappeared in a cloud of smoke, and left the British Commander-in-Chief, who "did not grasp the situation" (S), in ignorance of what had happened behind that smoke screen. After moving off to westward in safety for only twenty minutes, Scheer resolved "to make still further use of the facility of movement." (S) At 6:55 P.M. he again executed his "swing-around" of the German Fleet, and moved straight at the deployed British Battle Fleet, with a torpedo attack of German destroyers thrown out in advance. In accordance with their preconceived tactics, the British Fleet was turned away four points from these German torpedo attacks. Then, for the third time (7:17 P.M.), the German Commander-in-Chief carried out his same maneuver of ships-right-about, behind a smoke screen. And again the German Fleet withdrew in safety, leaving a puzzled enemy groping uncertainly at an empty cloud of smoke.

In this regard, there has been another crop of feckless controversies as to Jellicoe's cautious method of deploying his Fleet. All these debates were wasted words. For, now that it is known that Scheer came back to contact with the fully deployed British Battle Fleet, the much discussed method of deployment cannot be considered as of the importance assigned it. Even if the British deployment had not come to the Germans in the first place, the Germans had afterwards gone to the British deployment, and the German Fleet had not found any difficulty in drawing away from the fully de-

[3] *Defense* was sunk; *Warrior* sank while attempt was being made to tow her home; *Black Prince* was sunk in the night.



This chart was signed by Vice Admiral Beatty, affixed to his report of the action, and was published in the British Admiralty's official blue book, *The Battle of Jutland* (1920). This is a typical British chart of the action, and shows the British lack of knowledge of the thrice executed "swing around" of the German Fleet by ships-right-about (6:35 P.M., 6:55 P.M., 7:17 P.M.). The contrast with the actual course of the action is shown by the chart on pages 172 and 173.

ployed British Battle Fleet by means of their well prepared maneuver of evasion.

It is a strange comment on the course of the battle that this thrice executed German "swing-around" or ships-right-about was not understood by anyone in the British Fleet. The accompanying British chart of the action was signed by Beatty and affixed to his report—and it is typical of all the British charts. None of these showed the German "swing-arounds" until after the corrections were made by the British Admiralty, as has been described. The strongest testimony as to this ignorance of the British was in Jellicoe's book, published three years after Jutland. In this the British Commander-in-Chief made the positive statement that "altering by turning all the ships together" was out of the question under battle conditions—and he wrote this in perfect unconsciousness that his enemy had carried out just such a turn three times in the action itself!

Of course this fact, that the British had no idea of what the Germans were doing, helped the effectiveness of these rehearsed German maneuvers. But the actual reason for their success was because the Germans created by these means the very situation against which a cautious policy had been prescribed in the doctrines adopted in advance for the conduct of the British Fleet in action, which have been quoted: "If, for instance, the enemy battle fleet were to turn away from an advancing fleet, I should assume that the intention was to lead us over mines and submarines, and should decline to be so drawn." This preconceived cautious policy was the salvation of the Germans. Scheer himself has stated that the British Fleet might have made an effective reply to his maneuver "if it had kept firmly to our line."

But the tactics adopted in advance did not permit the British Fleet to close the retiring German Fleet, and from this time the German Fleet was not in great danger, nor even seriously engaged. The rest of the action was merely the story of the British Fleet at a loss, peering into a vast cloud of smoke and mist behind which the German Fleet had disappeared. So utterly did the British fail to feel out the positions of the enemy, that only occasionally would the German ships appear and disappear in this concealing cloud. As darkness came on, these tactics on the part of the Germans, with the British fixed idea of the dangers of torpedo attacks, became more and more baffling to the British Commander-in-Chief. And with darkness (9:00 P.M.) came the decision which ended the Battle of Jutland.

The British Commander-in-Chief has stated that he "rejected at once the idea of a night action between the heavy ships." To the Germans the British had conceded a superiority at night which put this out of the question.[4] As to the decision to avoid a night action, both Jellicoe and Beatty are on record as being in agreement at the time—and this is one point concerning the battle over which there is no controversy. By order of the British Commander-in-Chief the British Fleet moved through the dark hours "some eighty-five miles" (J) from the battlefield. This must be considered, in every sense, as breaking off the battle of the fleets—as ending the Battle of Jutland—for the British light forces were ordered to conform to the movements of the capital ships. And not one of these auxiliaries of the Battle Fleet was given a mission to seek out or keep in touch with the enemy.

On the part of the Germans, Admiral Scheer, in the words of the British Admiralty's *Narrative*, "decided to make straight for Horn Reef in close order during the night, maintaining his course regardless of attacks." He fully expected a night action, but he made the strongest disposition of his Battle Fleet against attacks, and determined to push his way through any opposition the British might offer. However, as the British Fleet had moved away to the south, the German Fleet passed across its wake to safety. In so doing the German Fleet plowed through the straggling British light craft left in the wake of the retiring British Fleet. But in the night there was only isolated fighting, altogether by chance, and without coördination or control.

The discussion over the "night action" of the light forces has been voluble, and much paper has also been wasted in controversies as to the "might-have-beens" if use had been made of information of the German positions in the night. But, in regard to both these phases of the Jutland disputes, the futility of the debates has been made evident

[4] "The German organization for night is very good. Their system of recognition signals is excellent, ours is practically nil. They use them with great effect. Finally, their method of firing at night gives excellent results." (J)

beyond any misunderstanding. In the first place, the "night action," as anything but a series of chance encounters, has been ruled out entirely by a positive statement in the British Admiralty's official *Narrative*. "The flotillas were ordered to take station astern five miles, and no instructions were given them to attack the enemy, nor were they informed of the enemy's position. In these circumstances, no organized attacks were made in the dark hours." In the same way, speculations as to what might have happened if use had been made of the information giving the positions of the Germans in the night, are also blocked by a dead wall. All such information was precluded from having any effect upon the result, because Admiral Jellicoe had disposed his whole force to keep on through the dark hours on southerly courses, with the fixed determination of not making any move against the enemy until daylight. There was no possibility of any information changing the British Admiral's resolve not to seek the enemy until daylight.

By the time it became daylight, all information as to the positions of the Germans was doubly of no value to the British; first, because the German Fleet had already passed safely across the wake of the British Fleet on its way to Horn Reef; secondly, because there had been so much straggling of the British Fleet in the night, that "the difficulties experienced in collecting the Fleet . . . . rendered it undesirable for the British Fleet to close the Horn Reef at daylight as had been my intention when deciding to steer to the southward during the night. It was obviously necessary to concentrate the Battle Fleet and destroyers before renewing action." (J) Nothing could be more explicit than this—and it proves conclusively that there was no possibility of a renewed action between the fleets, no matter what information might have been received. And this disposes of another flock of Jutland fictions, which has been prolific in controversies.

The foregoing has given the essential facts of the Battle of Jutland, in contrast with the fictions which have been put into circulation. As has been stated, these facts are plain for all to read. They are all established beyond any question, and there can be no dispute over them. If only we put the battle on the basis of these actual events of May 31, 1916, nothing will remain of the inventions of the succeeding years—and all the controversies will die the death of the fictions on which they have been founded.

In regard to the results of the Battle of Jutland, there is no avoiding the conclusion that the British failed to impose their superior force upon the German Fleet for two obvious reasons. In the first place, the British were not prepared with methods to close an enemy retiring fleet, because they were controlled by preconceived doctrines that especially warned them against such a course. In the second place the Germans had made special preparations, which made the problem against a retiring enemy fleet more difficult. Therefore, the blame for failure should be given to these British tactics, prescribed in advance by the Admiralty. It is unjust to charge the responsibility against the brave men who fought the battle. They were restricted to a cautious system of tactics which had been dictated to them. The fact that these tactics were inadequate for the situation in the Battle of Jutland was not their fault.

The mistaken idea that the Battle of Jutland had such an effect upon the German Fleet that "it never came out," is another of the fictions of Jutland. The sortie of August 18-19 has been described. After the end of 1916, the German Fleet continued to be a most active force in the war, and it kept a wide area in the North Sea cleared for the egress and entrance of *U*-boats in the great German campaign of unrestricted warfare. For this reason, the British failure to win a decision in the Battle of Jutland became more and more disastrous to the Entente Allies as the time went on, for it was only by this active use of the German Fleet that the *U*-boat campaign could be carried on. Another result of Jutland has not been duly appreciated. Instead of having any ill effect, the action gave to the German Navy so great a prestige that the German Naval Staff gained the influence necessary to win their argument for the adoption of the policy of the German Navy for unrestricted *U*-boat warfare. Consequently, not only did the German Navy emerge from Jutland with the naval forces necessary to maintain the *U*-boat campaign, but also with the added power necessary to bring about the adoption of this unrestricted *U*-boat campaign. This is the true measure of the tragedy of the British

failure to overwhelm the German Fleet at the Battle of Jutland.

Since the foregoing article was written, Admiral Scheer, the German Commander-in-Chief, has published a personal statement as to the Battle of Jutland, in the *Fortnightly Review* for October, 1927. He has agreed with the estimate given of the Harper Report, as he has written: " 'Harper's Record' concerning the Battle of Jutland, the publication of which had aroused such great expectations of important revelations—particularly in view of the fact that the British Admiralty had refused to release it for more than seven years and a half—must, I fear, have proved a great delusion. The report gives us no new facts as to the course and conduct of the battle . . . ." The German admiral has also perceived that the report was merely being used as a means for reviving the quarrels concerning the British leaders, for he has added: "It appears to me to be rather a contribution to the controversy between Admirals Jellicoe and Beatty. . . . "

Admiral Scheer's comment points the sermon that the "British criticism of the British leadership in the battle" has not given to the world a victorious impression. "Zealous efforts were and still are being made, to estabish the tactical errors made by the individual commanders, or to put the blame upon the imperfection or inadequacy of this or that type of battleship construction." As has been explained, this has given an unjust impression of blame, where the actual cause of failure was the restraint placed upon the British leaders by the cautious policy which had been adopted by the British Admiralty for the conduct of the British Battle Fleet.

The German admiral has realized that the British leaders were obliged to act under this policy, as he has written: "At the outbreak of the war the British Admiralty had decided to adopt the strategic defensive, inasmuch as it hoped to achieve its goal by the operation of the principle of the fleet in being." Admiral Scheer has stated that the British Commander-in-Chief "stood face to face with a task which diverged from his general strategic duties. The strategic defensive demanded reserve and repression so that the striking power of the Grand Fleet might not be diminished, and the sacrificing of ships was therefore to be avoided." The German admiral's recognition of "the strategic limitations placed upon Admiral Jellicoe in the matter of avoiding losses in ships" goes to the heart of what has been urged above, that the blame should be given to the enforced cautious tactics and not to the men who were obliged to use those tactics.

Admiral Scheer confirms what has been stated of the change of German naval strategy, when the German Imperial Government was forced to abandon unrestricted *U*-boat warfare by the ultimatum from the United States: "But as the German Government found itself unable to come to a resolute determination to ignore the protests of the United States—as England had done in the matter of international law at sea—it became necessary for the German Navy to seize the offensive in 1916." This effect of the *Sussex* ultimatum has never been fully understood in Great Britain.

He has also confirmed the statement of "the real object, which was to force the British Fleet to emerge from its secure retreat in the Orkneys. . . . . Lord Balfour, then First Lord of the Admiralty, sought to quiet the population by declaring that all preparations had been made to punish the Germans severely if they made another such attack."

The failure of the airships as scouts has been reiterated, "because the aërial scouting service could not be made use of at that time."

Finally, Admiral Scheer has used almost the same terms as to the far reaching ill effects of the British failure to destroy the German Battle Fleet at Jutland: "The destruction of the German Fleet would have proved an enormous success for England, for it would have made impossible the carrying out of the *U*-boat war, the damaging effects of which, England had already begun to experience (despite the limited application of this form of warfare). For the submarine fleet, deprived of its support in capital ships, would soon have been blocked in."

A Contribution to Good Will

By Lieutenant Russell M. Ihrig, U. S. Navy

The naval officer is peculiarly a citizen of the nation. He wears a uniform and holds a commission which makes him a representative of the American people at large, both at home and abroad. He visits practically all parts of his own country as well as foreign ones and meets citizens of all classes and occupations. His brother officers and the men under his charge are from the nation at large. He gradually loses his local character and affiliations and constantly becomes better acquainted with other people of the nation and other sections of the country. He leaves provincialism and becomes cosmopolitan. The inevitable disadvantage resulting is that, though he holds the respect of the nation at large, he loses that sympathy and understanding of particular communities that can only be fostered by long and intimate relations, both business and social. Failure to attempt to maintain this personal contact in some measure with the native heath—as long as no other one is adopted—is an evidence of poor citizenship on his part. The general lack of knowledge of naval affairs and the failure of the public "back home" to realize the need for, and the needs of, the Navy, are the fault of the officers.

IT IS an interesting thought to reflect on the proportion of the country, both as to population and as to geographical sections, that has the opportunity to become acquainted with its Navy at first hand. Take a map of the United States and count the states in the coastal fringes. Of the twenty-one, only twelve have any considerable connection with the Fleet or naval activities. Only ten have ports that are even visited by major units of the Fleet. Thirty-eight states, or roughly eighty per cent, do not even get a glimpse of it or any part of it. Less than twenty ports are, or can safely be, visited by the Fleet itself as a unit, or by major subdivisions.

Consider the population that sees the seagoing Navy at first hand. The centers of population, business production and voting are inland and lie somewhere within that eighty per cent that never sees its floating defenses. And it is an ironical fact that, in the main, it is from these very centers that comes, if not antagonism, at least apathy to adequate national defense on the sea. Note that the other industrial departments of the federal government—Commerce, Postal, Interior, Agriculture, Treasury, even the Army—all have agencies which are in almost daily contact with the citizens of that same eighty per cent as well as the other twenty.

"Wonderful! We should have a fleet of them," says the citizen, as the giant dirigible floats majestically over his own home in Jefferson County. "Valuably practical, a real national asset," says the inland shipper when he gets a report that after a long run of bad weather, the ship that brought his foreign goods into the country was piloted into port by the Navy radio compass stations. "Splendid idea, brings a tremendous amount of additional business; we should have one in our town," says the suburbanite who visits a training camp. Think of the vast number—yes, millions—who may, except during a war period, go almost a lifetime and not come even that close to their Navy. They may see a small part of it in a flash on the movie screen, or they may read a squib in the daily paper—"Navy flier sets new speed record"—"American blue-

jackets and marines landed in Nicaragua"—"Giant battleship goes safely through the Panama Canal"—"American destroyer convoys merchant ships safely up Chinese river." The sum and substance that he gleans is that the Navy is practically altogether concerned with activities entirely detached from his own personal interests—almost foreign. A dim and distant national symbol, this Navy, to a great many inlanders! Small wonder that it is difficult to arouse community or individual sentiment to an active, supporting interest in the Navy as a whole. If he could see the Battle Fleet steam majestically out to sea, see a scout cruiser or destroyer making a full speed run, dive in a submarine, ride in a seaplane, or go on board the *West Virginia,* he would probably be converted, just as we have seen hundreds of others converted. But he can't.

We, of the Navy, sometimes criticize quite bitterly those inland communities that oppose an extensive naval policy. But they have their own troubles making their immediate circles of activities complete. We cannot expect the people back home to be acquainted with our traditions, take pride in our achievements, understand our scientific advances, and be willing to vote to sustain a respectably sized fleet if they do not have chances to see it or read about it often at first hand. Too often we seem to think that simply because Congressman Jones appointed us to the Naval Academy, he is offside if he votes down the appropriation. He has the public opinion at home to satisfy.

The first individuals to convince the people effectively that insurance was good business were the insurance agents. The first to convince them of the necessity for good roads were the automobile agencies. Either costs the taxpayer many times more than he pays to support his Navy, but he sees and enjoys the advantages of the other two almost daily, and there is, moreover, sufficient interest taken by those agencies to see that he is kept informed of developments.

Is it unethical for the Navy to convince the individual that the money spent on his national insurance is relatively a small part of the total outlay of the federal government, that it costs him personally practically nothing, that the money spent is all returned to the people through the Navy's tremendously varied business activities and reacts favorably on general conditions just as would the operations of any such enormous industrial concern? Would it be unethical to attempt to convince him that this expenditure is directly reflected in progress in steam, electrical, diesel, radio and aviation engineering, the net result of which is a busier, and therefore wealthier, nation, and a higher standard of living? Why would it be unethical for officers of the Navy to show that the service is a great national school that gathers youths without ready advantages from all communities, and employs, trains and educates them, returning them to civil life as well-disciplined citizens and productive workers? Why is it beneath our professional dignity to speak for ourselves at least to the point of justifying our labors and encouraging a sympathetic interest, if not hearty support? It is not meant that we should sound off with ruffles and flourishes, but the facts should be placed conveniently available for every citizen; he should be given some means of regular contact and the chances are he will use it with increasing interest and intelligence.

At present the recruiting officers, Navy Day and the press constitute the only extensive, regular means of dissemination of correct information on naval activities. The first are concerned mainly with obtaining their enlistment quotas and are probably, as a rule, not effective because of a natural hesitancy to broadcast. The second is only at best an annual spasm, effective once a year in ports where Navy ships can be boarded or prominent officers can speak and properly present the facts; its effect is largely lost in inland communities where attention is more probably directed to the cost of maintaining the naval establishment than to the effectiveness of that maintenance by the service. The third is often dependent upon the mere whim or good will of an editor or a reporter, and what is worthy is only too often misrepresented or is made ridiculous by mistaken description or narration. The service weeklies are excellent but their circulation is lamentably small. The only other source of information is the personal letters of officers and men in the service. We all know how absolutely neglected is this latter phase.

THE UNITED STATES NAVAL INSTITUTE PROCEEDINGS constitute the only concise,

authentic, running account of current naval history, scientific naval progress and professional opinion by naval officers. It is the correct medium to place the Navy directly in front of those people "back home" who seldom hear of it and know not what we have done, are doing, and are thinking of doing. It is particularly appropriate because it is, so to speak, a balanced ration, with articles of historical, biographical, and scientific interest, anecdotes of the sea, world politics and international crises. It gives the naval officers' points of view on proposed legislation, contains a complete résumé of naval, technical, and marine engineering progress throughout the world, and catalogues and reviews the latest books covering a wide field of general interest. Truly an unusual man who would not be interested by some phase of its contents each month. And finally, it is written and published almost entirely by officers of the Navy and constitutes an excellent monthly report of the Navy to its employer, the people.

But the People do not receive it. The book is prepared by the Navy and sold largely right back to the Navy. It is, we might say, an ingrowing development, a sort of process of inbreeding.

True, the roll of the Institute shows a reasonable number of civilians. But they are voluntary subscribers, and they are such because they are already interested in the Navy. What is desired is to put the facts, figures and opinions before those who might go for years and not have a passing thought on our activities except when they read of a wreck, an Army-Navy game or an aviation squabble. All of which are of very doubtful value in educating the public to the true significance of the naval service.

The problem is, how to put this interesting, conservative, authentic, monthly report before the people—how to get copies into the hands of at least a few of the millions of readers in public libraries, universities, high schools and clubs. The Institute cannot afford to supply any considerable number of free copies because it is published for the very smallest reasonable profit consistent with its natural expansion. The average civilian is already saddled with a long list of magazines and would be hard to convert to a subscriber for still another. Moreover, perhaps the dignity of the Institute properly dictates against a real campaign for heavy civilian membership. The Navy Department will not, and could not, consent to subscribe and distribute copies. Cries of "Propaganda!" would break every window in both houses of Congress! But for an individual to send a gift subscription to the home town club, library, university or high school, could only be classed as the act of a thoughtful citizen, club member or alumnus—which is exactly what it would be.

There is the plan. Suppose each officer, or at least each present member of the Institute, were to write a personal letter to the secretary of his home club, dean of the university, principal of the high school, or librarian of one of the libraries, telling him simply that, having left the community to enter the naval service, and wishing to link up his professional activities with those of the citizens at home, and realizing that a truly loyal citizen cannot help but show an interest in his Navy if given the opportunity, he is, therefore, sending the PROCEEDINGS OF THE NAVAL INSTITUTE to them for one year. A brief word on the fact that it represents the best written thought and record of naval progress, and may prove useful to those who know very little about the Navy, would not be out of place and would likely be very much appreciated in itself.

The availability of the information contained in the PROCEEDINGS would prove a boon to those having relatives or friends in the service, a business asset to those interested in any one of the great number of naval business activities, and a much sought source of fact by students and teachers. The favorable reaction on the very classes of people whom it is our duty, as well as interest, to acquaint with the traditions, achievements and ideals of the Navy, can hardly be estimated.

The cost is small, the procedure simple, and the personal and professional pride of the donor cannot but be enlarged thereby. The ever-widening gulf of lack of understanding that comes from long absences from those we left behind us, is often a source of keen regret, as well as injured pride, when we return home and find that our profession is so little understood or sympathized with. Re-establishing contact in a friendly and conservative way will be to the credit of the officers as citizens of the nation and of the community.

Courtesy of the Pan-American Union

MEMBRILLO, VALPARAISO, CHILE

Courtesy of the Navy Recruiting Bureau, New York

MONUMENT DEDICATED TO ADMIRAL PRAT OF CHILE, VALPARAISO, CHILE

Courtesy of the Navy Recruiting Bureau, New York

MONUMENT DEDICATED TO ADMIRAL PRAT OF CHILE, VALPARAISO, CHILE

Courtesy of the Pan-American Union

GENERAL VIEW OF COQUIMBO, CHILE

The fleet passed close enough to see the smoke from this industrial city and then continued north.

Courtesy of the Pan-American Union

WHARF AT CALLAO, PERU

Courtesy of the Pan-American Union

WHARF AT CALLAO, PERU

Courtesy of the Pan-American Union

GRAU MONUMENT, NEAR THE DOCKS, CALLAO, PERU
This park is the terminus for the tramway from Callao to Lima.

Courtesy of United States Signal Corps. International Newsreel

THE PLAZA, LIMA, PERU

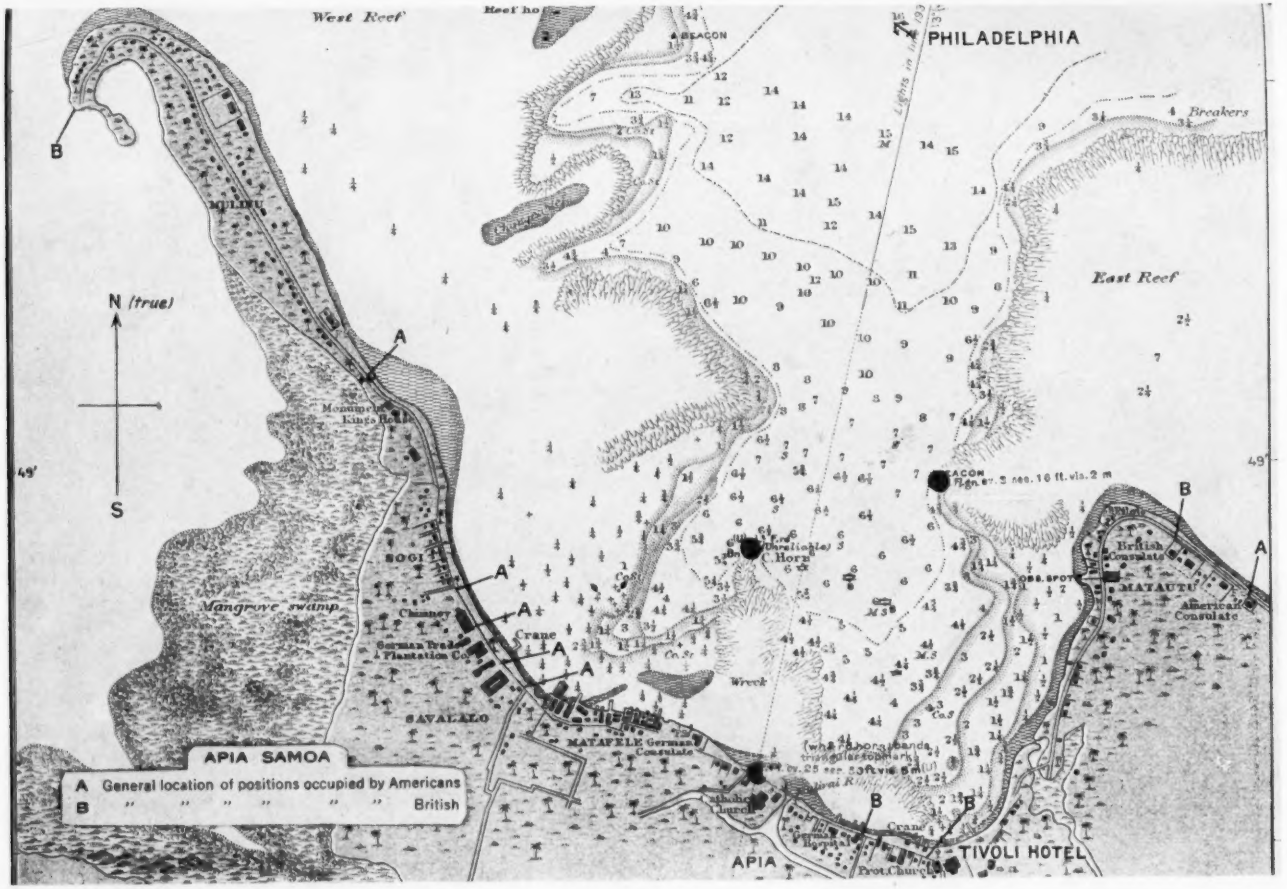
THE PLAZA, LIMA, PERU

Courtesy of the Pan-American Union

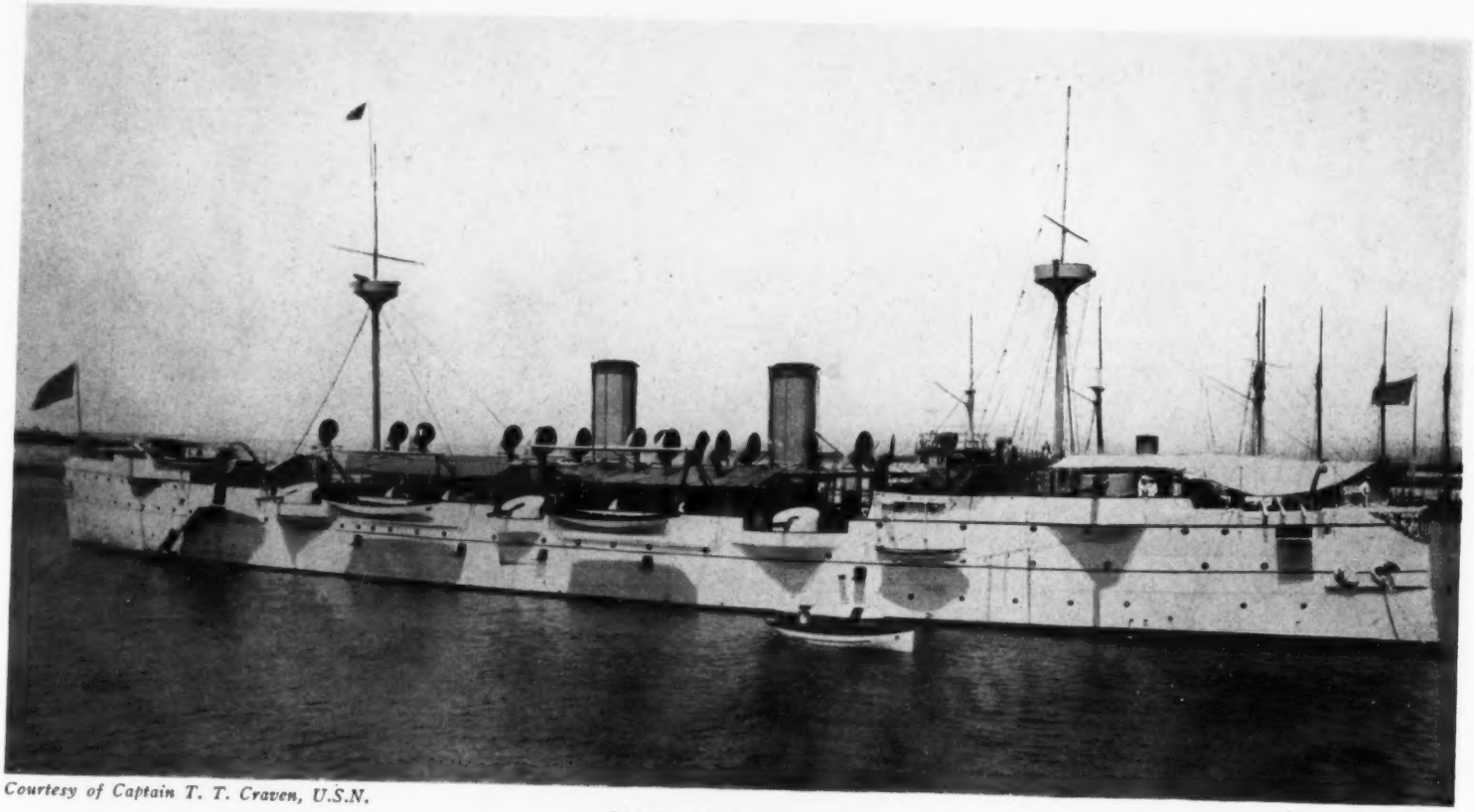
CATHEDRAL, LIMA, PERU

Courtesy of the Pan-American Union

REMAINS OF PIZARRO, LIMA, PERU


West Reef
PHILADELPHIA
Breakers
East Reef
N (true)
S
A
B
SOGI
Mangrove swamp
SAVALALO
MATAFELE German Consulate
APIA SAMOA
A General location of positions occupied by Americans
B " " " " " " British
APIA
TIVOLI HOTEL
MATAUTU
British Consulate
American Consulate
Wreck
C. Horn
Crane
49'

APIA HARBOR



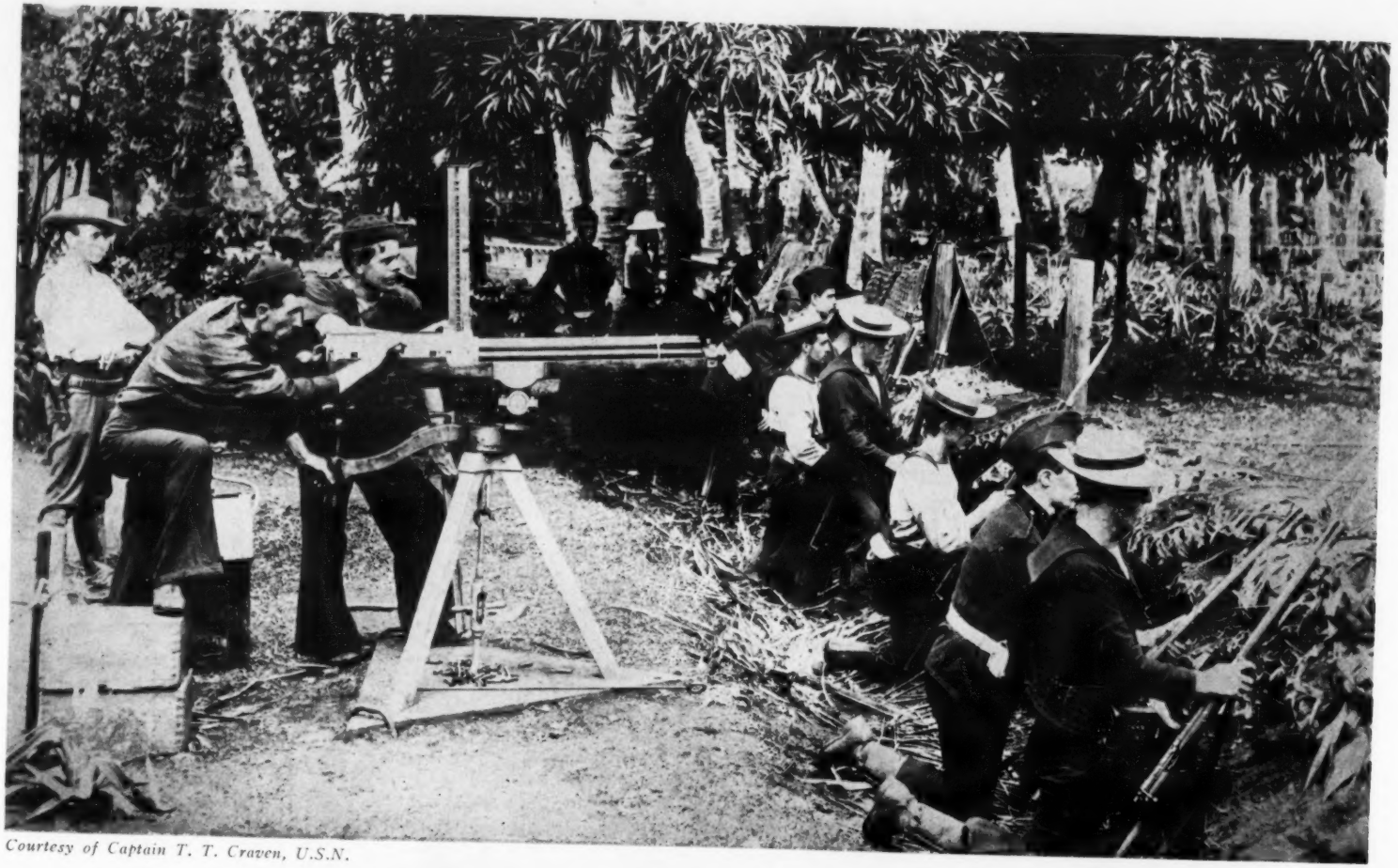
Courtesy of Captain T. T. Craven, U.S.N.

U.S.S. "PHILADELPHIA"
Flagship of Rear Admiral Albert Kautz during the fighting around Apia, Samoa, in 1899.

Courtesy of Captain T. T. Craven, U.S.N.

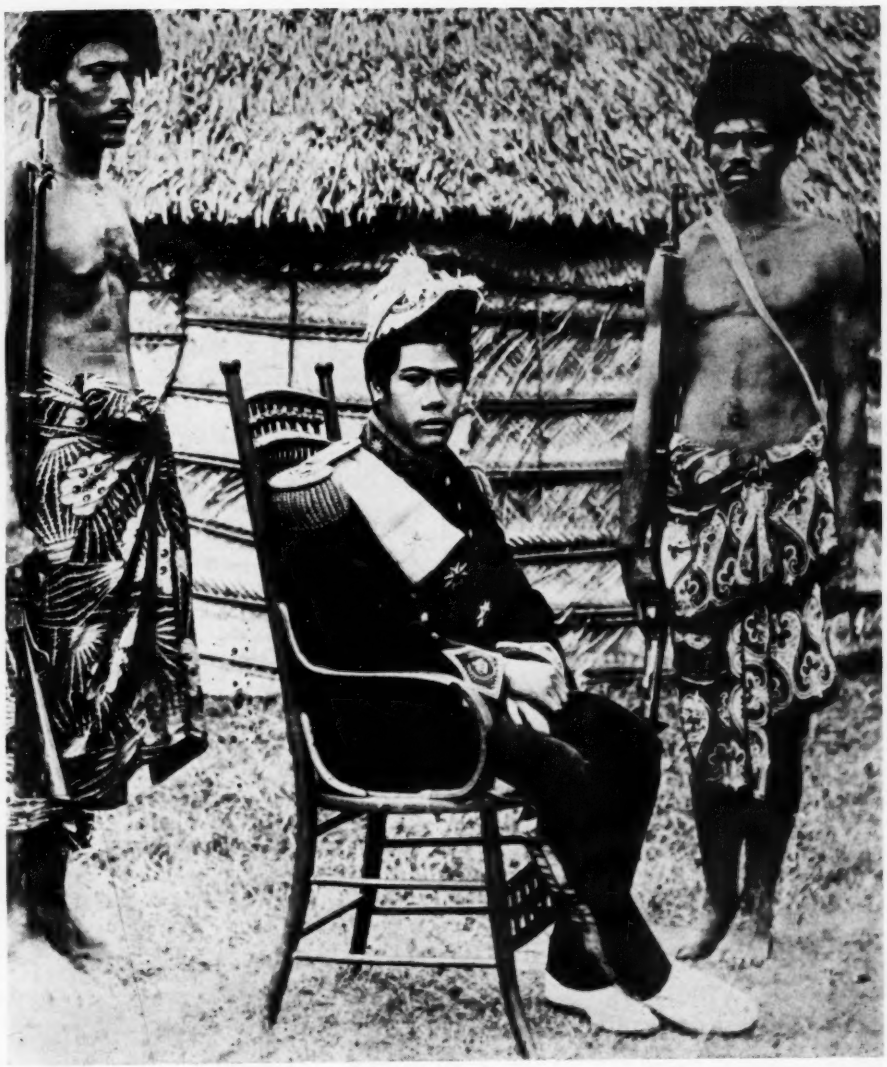
THE ANGLO-AMERICAN MONUMENT

Erected in memory of those killed in the operations near Apia, Samoa, 1899.



Courtesy of Captain T. T. Craven, U.S.N.

SOME OF THE DEFENDERS OF THE U. S. CONSULATE, APIA, SAMOA, 1899



Courtesy of Captain T. T. Craven, U.S.N.

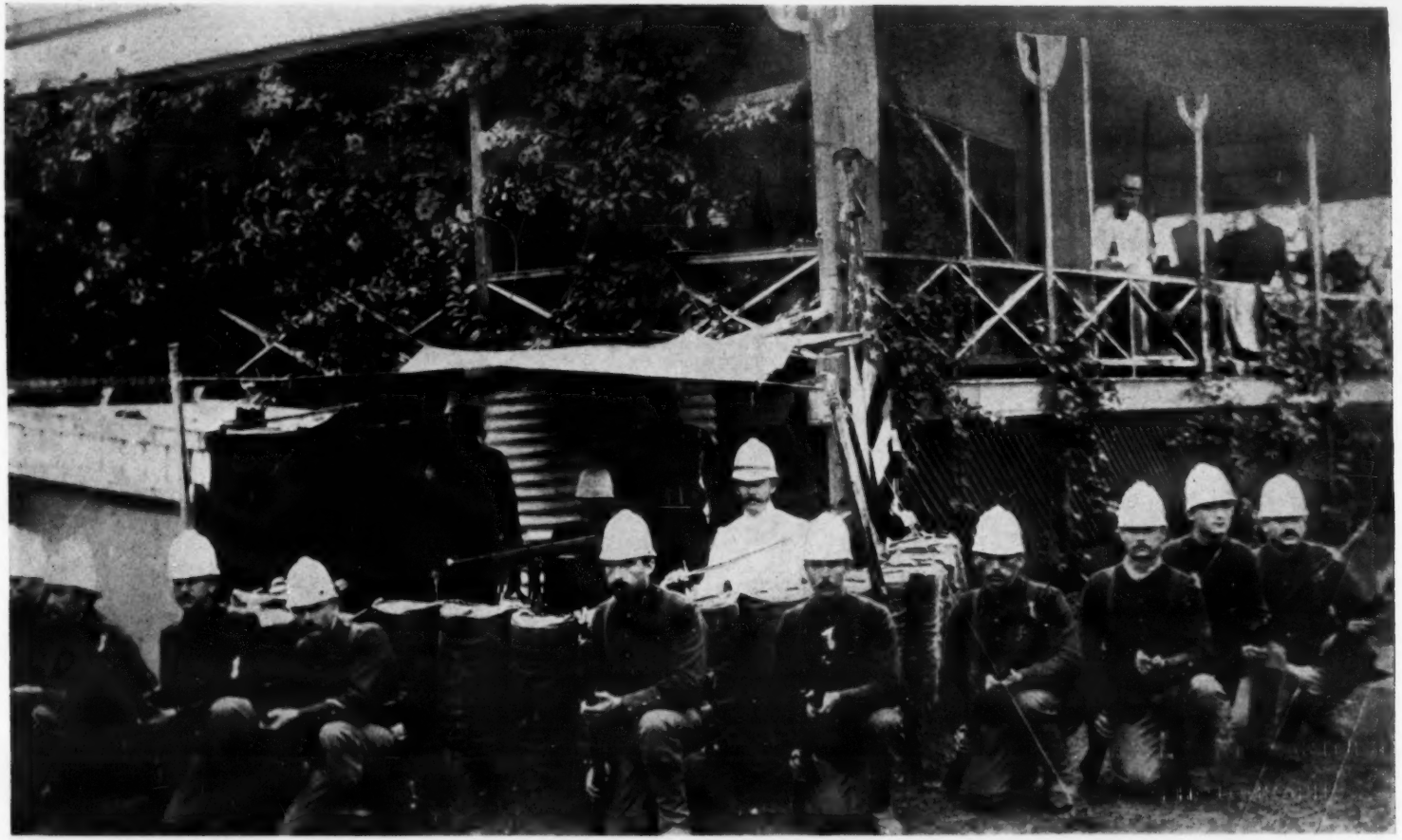
Maleatoa Tanu, Samoa, 1899
The young king is here shown in his coronation regalia.

Courtesy of Captain T. T. Craven, U.S.N.

SCENE OF THE AMBUSH

Near this spot Lieutenant Lansdale, Ensign Monaghan and Ordinary Seaman Edsall were killed.

SCENE OF THE AMBUSH
Near this spot Lieutenant Lansdale, Ensign Monaghan and Ordinary Seaman Edsall were killed.



Courtesy of Captain T. T. Craven, U.S.N.

AMERICAN MARINES AT U. S. CONSULATE, APIA, SAMOA

Courtesy of Captain T. T. Craven, U.S.N.

THE TRENCHES AT MULINUU
Ensign (now Captain) Craven may be seen in the center foreground.

A Naval Episode *of* 1899

By CAPTAIN T. T. CRAVEN, *U. S. Navy*

INTRODUCTORY NOTE

FROM very early days, Samoan affairs have been of peculiar interest to America.

At Samoa, in 1874, the United States first stepped out of continental barriers and into the entanglements which inevitably attend close foreign contacts. In 1889, because of Samoan interests, our government involved itself, through the medium of the Berlin Treaty, in a "League of Nations" which soon failed, despite the best endeavors of the three associated powers.

Hawaii and Samoa, as strategic points important in the adjustment of international problems of the Pacific, were for years focal points of naval activity. The incident described herein probably marked the end of an old form of naval service, in which responsibility for decision and results was vested in local authority. In the future the nerve channels of a world-wide communication service will compel home governments to deny to naval commanders the liberty of action that was exercised in this instance.

THE SAMOAN ISLANDS

The Navigator or Samoan Archipelago, roughly consisting of a dozen small islands, lies well within the tropics, yet, thanks to the influence of the trade winds, has a climate that is both mild and delightful. Visitors soon become bewitched by the charm of their surroundings and can never forget the spell of the beauty that lurks on the steep green hillsides, in the beautiful valleys, and along the shores of these far-off islands.

From the earliest days of which we have record, romance and tragedy are found together on every page of the history of this locality. LaPerouse was the first foreigner to suffer in an encounter with its stalwart inhabitants, he losing eleven of his people in a skirmish with warriors better acquainted than himself with the tactics best adapted for jungle warfare.

THE INTEREST OF THREE POWERS

For many years the control of the Samoan group supplied a problem for the governments of Great Britain, Germany and the United States. For long each one of the three powers had considered that it held special interests in this group of fertile islands, lying in mid-Pacific near the direct route between the narrow neck at Panama and Australasia and containing several anchorages besides the fine harbor of Pago Pago, where the American Government had been given special privileges.

Judge Mulligan, one time United States consul in Apia, states in an early account of Samoa:

> On the arrival of the missionaries, about 1833, Malietoa, who was christened Davita, was found to be a most powerful chief, his rule extending over the greater part of Savaii and a part of Upolu, but beyond those districts he had little or no influence. In 1872 the natives of the island applied to General Grant to appoint Colonel A. B. Steinberger, of New York, who had already visited the islands, as a special agent and their general adviser. In 1874, Colonel Steinberger arrived in Samoa with letters of recommendation from General Grant and also with a considerable supply of firearms and a fine steam launch.
>
> National jealousies likewise figured largely in the case, and after a short reign, not exceeding one year in duration, the Colonel was forcibly deported by a British warship, the United States Consul and King Malietoa Laupepa assisting and approving. The result of these measures was an insurrection in favor of the Colonel, then a prisoner on board the *Barracouta*. The king was deposed and compelled to flee to Savaii, and an attempt by Captain Stevens and an active and intriguing missionary to reinstate him resulted in a conflict at Mulinuu, during which a number of British sailors and some Samoans lost their lives. Malietoa Laupepa's deposition was confirmed and he was succeeded by his uncle, Talavau. For several years the faithful natives waited in vain for the return of the Colonel, to whom they were greatly attached.
>
> During this time another British warship visited the place and, on a most fanciful pretext, gave the unoffending natives the option of paying a fine of $5,000, or submitting to a bombardment. Previous to this the harbor of Pago Pago had been ceded to the United States as a coaling and supply sta-

THE TRENCHES AT MULINUU
Ensign (now Captain) Craven may be seen in the center foreground.

tion for naval purposes, and in 1879 the Samoan ambassador, Le Mamea, returned to the islands from Washington, bearing with him a treaty of peace and amity. This was duly ratified by the Samoan Government, which sought in every way to express its gratitude toward the first of the great powers that treated it with courtesy. Feasts were prepared for the officers of the *Adams*, which vessel had returned Le Mamea to the islands, and it is safe to estimate that more than two thousand pigs and an immense number of fowl, fish and other native productions were presented to the ship.

Upon the death of Talavau, Laupepa again succeeded, and he in turn was again deposed and exiled by a German fleet, in 1888, on grounds as valid as those which had formerly served the British. An insurrection, under the leadership of Malietoa Mataafa and the active interference of the United States in the matter, resulted in the bringing about of the Berlin Conference, which declared in favor of Laupepa. The return of Laupepa and his reinstatement was in opposition to the wishes of most of the natives, who were heartily tired of him, and who were strongly in favor of the retention of Mataafa, who had defeated the German forces at Vailele. This gave rise to the troubles which have since operated disastrously upon the general welfare of the group.

In 1893, Laupepa, with the assistance of a German and a British warship, defeated Mataafa, near Apia, and shortly afterward, that brave chieftain surrendered to the British ship rather than continue the struggle against the odds opposed to him. Together with some twenty of his principal chiefs, he was deported to the Island of Jaluit in the Marshall group. On the return of Laupepa, after his deportation by the Germans to the pestilential coast of Africa, his first official act was to abdicate in favor of the great chief Mataafa, who had practically won his release. The Berlin Treaty having provided that an election for king should take place, Mataafa had been induced to waive his claim until such time as the free choice of his countrymen should seat him upon the throne. . . . .

Trouble Over Succession

The Treaty of Berlin, regarding the supervision of Samoa, drawn up in 1889 and subscribed to by the three great world powers, created a "League of Nations," and as a member of it, the United States first departed from the recommended policy of avoiding "foreign entanglements." It brought into existence a tripartite arrangement for the supervision of the Samoan group, but, in accordance with the terms of this treaty, self-government was given the Samoans, together with the right of selecting their own king. The three powers having interests in the Islands engaged, each in turn, to maintain at Apia an officer, to be known as the chief justice and to this official were to be referred all local questions involving serious dispute. He constituted, in fact, a court of high and last appeal, and in accordance with the treaty the signatory powers were pledged to abide by his decision.

After the death of the old king, Malietoa, the question of his successor had arisen. Two candidates entered the field—one his son, Malietoa Tanu, then a youth of about eighteen years; the other the venerable Mataafa, for many years one of the stormy petrels of Samoa. Might finally asserted itself and Malietoa adherents were driven into the bush by the better-armed Mataafa faction.

For a while Samoan affairs were in a hopeless tangle. Then an arrangement was made by which the English, German and American consuls, together with Mataafa and thirteen of his chiefs, formed a provisional government. This did not last long. The Germans, who had all along supported Mataafa, claimed that the formation of this provisional government broke up the Tripartite agreement. The English and Americans were equally positive that the agreement still held. The trouble came when Chief Justice Chambers, America's representative, and Consul Maxse, representing England, resolved to open the courthouse in Apia, in order to try certain prisoners. Mr. Rose, the German consul, acting on behalf of Mataafa, refused to give up the keys to the courthouse, and a deadlock issued. H.M.S. *Porpoise* had arrived in Apia, and Commander (now Admiral) Sturdee, who was in command, landed a body of marines and marched them to the courthouse, where he was met by Consul Rose and Mataafa, backed by a large number of warriors. Captain Sturdee demanded the keys, and said that if they were not produced, he would order his armorer to break down the door.

For a while matters were very serious, and it looked as if there would be a fight, but finally the keys were produced. It is not generally known that the *Porpoise* and the German cruiser *Falke* cleared for action on that particular occasion, as it was expected that the German consul would call upon the German warship to uphold him in his refusal to permit the court being opened.[1]

Conditions had become very complicated because of the fact that, acting under general instructions from their respective governments, the senior German naval officer on the ground had shown strong partisanship for the Mataafa party in direct violation of the spirit and the terms of the treaty, while the senior British naval officer present had definitely indicated his support of the decisions of the chief justice, which favored the claims of Malietoa.

[1] From *Forty Years on the Pacific*, by Frank Coffee.

THE ARRIVAL OF THE "PHILADELPHIA"

Rumors of a clash at Apia having filtered through to Washington, the Commander-in-Chief of our floating forces in the Pacific was directed to investigate conditions and to guard American interests at this port.

On the morning of Saturday, February 11, 1899, the U.S.S. *Philadelphia,* flying the flag of Rear Admiral Albert Kautz, U. S. Navy, and commanded by Captain Edwin White, U. S. Navy, and under orders to proceed to Samoa, entered the port of Honolulu, dropped both anchors and secured stern to reef with wire hawsers as was the custom in that restricted harbor.

Reports of conditions to the southward were disturbing and the stay of the ship in Hawaii was short. On the morning of February 22, President Dole and his staff visited the flagship. At noon the *Philadelphia* fired a national salute in honor of the day, and at 2:20 P.M. weighed her anchors and left the quiet shelter of Honolulu for Apia, Samoa.

In this far off spot, her admiral was destined to assume leadership in an operation of which today but little is known. In modern times with easy and direct communications, the Navy cannot expect to act with the freedom enjoyed by the *Philadelphia* and her consorts in Samoa upon this occasion. Home governments, in the future, will make the decisions formerly demanded of naval officers.

Attached to the *Philadelphia,* flagship of the Pacific Fleet, at this time were the following officers:

Rear Admiral Albert Kautz
Lieutenant (jg) W. G. Miller, Flag Lieutenant.
Ensign D. F. Sellers, Flag Secretary.
Captain Edwin White, Commanding
Lieutenant P. V. Lansdale, Executive.
Lieutenant G. W. Brown, Navigator.
Lieutenant H. A. Field, Watch Officer.
Lieutenant (jg) F. H. Brown, Watch Officer.
Ensign J. R. Monaghan, Watch Officer.
Ensign T. T. Craven, Watch Officer.
Chief Engineer A. B. Bates.
Passed Assistant Engineer W. W. Bush.
Assistant Engineer B. K. McMorris.
Passed Assistant Surgeon G. A. Lung.
Assistant Surgeon H. E. Odell.
Paymaster J. R. Stanton.
Chaplain A. A. McAllister.
First Lieutenant C. M. Perkins (Marine).
Naval Cadet J. F. Babcock.
Naval Cadet G. C. Sweet.
Naval Cadet G. T. Pettingill.
Pay Clerk O. G. Haskett.
Pay Clerk J. J. Doyle.
Boatswain J. S. Crogan.
Gunner C. E. Jaffe.
Carpenter J. A. Barton.

The routine of the ship proceeded in accordance with the practices for naval vessels cruising independently, and during the days which followed departure from Honolulu, all hands were exercised at quarters and drilled at the battery in compliance with custom but with no special preparation for the unexpected events which soon were destined to command attention.

On the afternoon of March 1 a target was put over the side and both main and secondary batteries were exercised at practice, conducted in the fashion when good line shots, though often "a little" high or low, were considered to be satisfactory. After completing the firing the ship was swung for compass errors and continued on her way. On Saturday, March 4, the marine detachment was exercised in firing a Colt gun, a new arm which had not been on board the ship for long and with which there was no great familiarity.

Shortly after daylight on Sunday, March 5, land was sighted ahead and the *Philadelphia* rounded the Island of Tutuila, picked up a pilot, and anchored in the harbor of Pago Pago. Here her stay was very brief, but time was well occupied. We note in the log that the ship's company, in the morning, "mustered at quarters," and then held "a general muster," which was followed by "divine service." These were forms of rest in which there was once frequent indulgence on Sunday forenoons on board naval vessels. Later, the ship got underway for Apia, on the Island of Upolu, where she arrived shortly after dawn the next day and found H.B.M.S. *Porpoise,* commanded by Commander F. C. D. Sturdee, and the old square-rigged British sloop *Royalist.*

Anchored not far away from these two craft was the trim, neat and modern looking German gunboat *Falke.* With these men-of-war, the *Philadelphia* was destined to have numerous contacts during the following weeks.

As soon as the anchor struck bottom, the

ship was surrounded by Samoan canoes, the latter staunchly constructed from logs hollowed out and fitted with a single outrigger on one side. Considering their size, it seemed remarkable that these small craft should be capable of carrying so many persons, but as we grew to know the Samoans we discovered their superiority as boatmen. The canoes that surrounded the ships were filled with men and women, boys and girls. With them they brought fruit and flowers, articles made of wood carved in various ways, fans, mats, and tapa cloth; things for which Samoa had always been celebrated. The fascinating and distinctive odor of the tropics was in the air. Evidences of cocoanut oil used on the bare shoulders and bodies of the natives was strongly noticeable. Hair of considerable length, standing out in a style considered by the Samoan as most imposing, and bleached with lime was common. All men were tatooed in a uniform fashion, each adult male wearing a variegated lace-work pattern extending from waist to knees. The lava lava or breech cloth of tapa was the dress worn by the men. Women dressed in a single garment of cotton, built on the lines of a Roman toga, though shorter. The officers and men of the *Philadelphia* regarded these representatives of an old and stalwart line of sea-faring people with the keenest interest for the wonderful physique and beautiful figures so plainly exposed, belonged to a race containing the finest physical specimens to be found anywhere in the world.

The Samoans were keen to trade food stuffs and various articles of native manufacture for foreign commodities. Matches, soap and tobacco were in far greater demand than money. Each one of our many visitors seemed intent on securing a patron from amongst the crew and knowing the needs of those who lived in ships, they presented documents testifying as to their abilities as washman or washwoman and all were insistent upon taking on laundry responsibilities.

APIA AND THE SURROUNDING COUNTRY

The harbor of Apia is formed by a fissure in the reef of sharp coral which completely surrounds the island. Such breaks occur where fresh water streams, flowing into the sea, destroy the life of the tiny builders of the coral fringe. In this exposed anchorage, ten years before, had occurred a dreadful naval tragedy in which there was a considerable loss of life in a fleet assembled in Samoa, because of international and political unrest.

From the deck of the *Philadelphia,* and not far away, one saw the wreck of the *Adler,* one of the German vessels lost in the hurricane of the previous decade, and the sight of the reddish members of the wreck, close in by the beach and lying on its beam ends, had a depressing effect.

The settlement was scattered along the waterfront, and behind it and high in the hills, one could see Vailima, where Robert Louis Stevenson had lived and died. To the right of the house, as viewed from the anchorage, could be distinguished the green eminence of the almost inaccessible summit to which his body was taken with great difficulty by his Samoan friends and laid to rest.

To the left, as viewed from the ship, and on the flank of the town, was the American Consulate, home of our representative, Mr. Osborne, and his wife. At this place, the marine detachment from the U.S.S. *Philadelphia,* under the command of Lieutenant C. M. Perkins, was soon to be posted behind the ramparts of sandbags and a small amount of barbed wire, employed to strengthen the defenses of the wooden building standing on the point forming the eastern side of the harbor. To the right, and separated from this building by a distance of about 200 yards, stood the house of the British consular representative. Here during the entire period of active hostilities lived Mr. Maxse and his courageous and devoted wife. This small household, which declined to leave its post, held the unqualified admiration of the allied contingents, for bullets flew very frequently thereabouts. Protection was being afforded their consul by men from the British ships and after our arrival a machine gun and crew from the *Philadelphia* assisted at this point. To the westward of the British Consulate, the buildings of the town began and were scattered along both sides of a road paralleling the beach for a distance of a mile or two. About the center of this line was the Tivoli Hotel, the "Ritz" of Apia. The British lines extended on beyond their consulate and into the town to the neighborhood of the "Tivoli." Some distance to the westward of the Tivoli Hotel stood the German

Consulate and the buildings containing the offices for the management of the German commercial enterprises. The Germans for long had controlled numerous plantations in the Samoan archipelago on which large quantities of copra was produced. The cultivation of the cocoanut resulted in the building up of a very considerable trade with the consequence that Teutonic business interests in Samoa predominated at this time.

A little farther on and beyond the German settlement the American lines later began and were commanded in this neighborhood by Lieutenant Lansdale, assisted by Ensign Monaghan and Naval Cadet Sweet. Farther on by half or three quarters of a mile, an American line was soon to be stretched across the neck of the Mulinuu peninsula. Here were posted American sailors under Lieutenant Ford Brown. This officer first had command of Mulinuu, the seat of government, and to him belonged the responsibility for the protection of the thousands of natives occupying this settlement. He was assisted by Naval Cadet J. F. Babcock and Gunner Jaffe. Lieutenant Brown's health failed him after a time and he was then relieved by Ensign T. T. Craven.

The extremity of Mulinuu Point was destined to become a British outpost at which a machine gun was situated. This post, intended to prevent invasion from the rear by boats of unfriendly natives, was placed under the command of the American officer controlling the defenses of the peninsula.

There being no docks at Apia, the flat coral reef at Mulinuu, extending for some distance off shore and exposed at low tide, supplied what seemed a serious obstacle to the landing of a British 4.7-inch gun for service at this place. The matter was given attention finally in a good old-fashioned Samoan way. The boat containing the ordnance was brought in at high tide until she grounded. The gun was then slung under the middle of a nest of bamboo poles, and when all preparations had been completed to their satisfaction, the piece was picked up and carried ashore on the shoulders of a couple of hundred stalwart aborigines to the accompaniment of grunts and native chanties.

During the latter days of the war and after the ambush at Vailele a native contingent consisting of several hundred Samoans, armed with British rifles from New Zealand, and commanded by Acting Lieutenant Guy Gaunt, R.N., were quartered at Mulinuu. Gaunt, who later became a vice admiral, was taken into the regular British service as a lieutenant because of his activity here in Samoa. Subsequently, during the World War, destiny took him to Washington, where he served his country ably as its naval attaché and became the successful underrunner of the German system of espionage in the United States. The warriors actively commanded by the British lieutenant soon took on an air of smartness and pride in their organization and began the boat expeditions along the coast and the forays into the jungle back of Apia, undertaken almost daily with the view of keeping the followers of Mataafa at a distance.

Some Samoan Customs

Mulinuu, at this time housing a population of between four and five thousand followers of Malietoa gathered from many sources, was a particularly interesting place for those not familiar with South Sea life. Here the typical Samoan houses, consisting of circular thatched roofs supported by posts, were scattered about without any particular plan of arrangement. In passing, when the matted side screens had not been lowered, one might acquaint himself completely with every detail, however intimate, of housekeeping. In Samoa, as unhappily is not uncommon in other parts of the world, women did most of the work and labor, which, insofar as man was concerned, ended when the food supply for the day had been provided.

The best authorities are in agreement as to the importance of food in times of war and we soon learned to like the various and simple articles of fare to be found in the islands. Baking and roasting was done in a pit lined with stones, raised to a very high temperature by a fire of dry dead wood. The wood coals having been raked aside, a chicken, fish, or pig wrapped in leaves, placed in the pit and then covered over and left in this primitive oven until cooked retained its flavor remarkably and became truly delicious. While their women were occupied with household duties, the men slept or sat together puffing native cigarettes of

curious appearance and odor while discussing details of Samoan politics. The fly was ever present and the bare backs of the Samoans, coated freely with cocoanut oil, seemed to be especially inviting to these troublesome insects. To brush them off, the native supplied himself with a fui, or sort of switch, of horse hair or cocoanut fiber, which he waved about over his shoulders.

There were but very few horses in the island and horse hair fuis were at a premium. It was reported that shortly before our appearance a steam propelled "merry-go-round" had visited Apia. This novel apparatus had greatly pleased the natives but the tails soon disappeared from the rears of the wooden horses and an immediate improvement became noticeable in the style of the fuis belonging to many of the best native families.

The Samoan was not addicted to the use of alcohol, but in each house kava, a concoction in high favor, was brewed. If taken in excess, the legs were affected by the drink and walking might become impossible, though the mental faculties remained unimpaired.

The Samoans attached great importance to the number of legs belonging to their curiously carved bowls, in which the refreshment was prepared. To the lowly in station, a kava bowl with few props sufficed, but to the vessel of the chief, many supports were necessary.

The same dictates seemed also to apply to the umbrella, an appliance greatly in demand in a country where the sun beat furiously and tropical downpours were common. The first stock of umbrellas taken to Samoa as substitutes for the broad leaves of the banana tree was of the conventional type, but the desire for an increase in the number of ribs by native dignitaries met with prompt response on the part of foreign manufacturers and imported multi-ribbed umbrellas soon ceased to be of more than very casual interest.

Estimating the Situation

Upon the arrival of the *Philadelphia*, the newly arrived admiral and the captains of the different ships were soon busily engaged in exchanging salutes, calls and information. The situation on shore manifestly was acute and armed natives of the Mataafa faction everywhere were strongly in evidence.

At this time, their chief was living in a hut near the eastern edge of Mulinuu in a region where the residence of other Samoan high chiefs were found and in a vicinity where, a short time later, the trenches were dug for the protection of the Samoan town located behind them. Some of the younger officers of the *Philadelphia* visited Mataafa and were received in a very cordial and dignified way and, through the medium of an interpreter, he talked with them regarding Samoan problems for half an hour or more.

While the youngsters were engaged in making a preliminary survey of the town and in speculation as to the outcome of the controversy, the admiral and the captains, together with the consular representatives and Judge Chambers, met in conference and sought a remedy for the unhappy condition and outlook prevailing in Samoa. All the circumstances leading up to the situation were carefully gone over and finally the admiral definitely reached the decision that he must place himself beside the British in supporting the terms of the treaty under which the government presumed to operate.

Soon after the adjournment of this conference, the following proclamation in both the English and Samoan languages appeared and was given to the natives of Samoa:

To High Chief Mataafa and the thirteen chiefs associated with him, in particular, and to all the people of Samoa, both foreign and native, in general:

1. Whereas at a meeting held this day on board the U. S. Flagship *Philadelphia*, at anchor in the harbor of Apia, at which were present the Consular representatives of the three signatory powers of the Berlin Treaty of 1889, and the three senior naval officers of the same powers, it was agreed that the so-called Provisional Government under High Chief Mataafa and thirteen other chiefs can have no legal status under the Berlin Treaty, and can therefore not be recognized by the consular and naval representatives. It is hereby ordered that the High Chief and the thirteen other chiefs aforesaid go quietly to their respective homes and obey the laws of Samoa, and respect the Berlin Treaty.

2. It is further ordered that all the chiefs and their people who have been ejected from their homes and who have been sent to different points in the Samoan Islands return quietly to their aforesaid homes without molestation.

3. The guarantee of protection, as far as lies within the power of the Naval Force now in this harbor, is given to all who quietly obey this order. On the other hand, it will be used against all who disregard it or the rights of quiet and peaceably disposed people.

4. The Treaty of Berlin recognizes the Chief Justice of Samoa as the highest officer under the

existing government and as long as he holds his office his authority must be respected and the decree of the Court must be carried out.

5. Trusting that all residents of Samoa will have the good sense to observe the requirement of this proclamation, which is issued in the interests of peace, with an earnest regard for the rights of all, both foreign and native, and that there may be no occasion to use military power to enforce it,

I am respectfully,
ALBERT KAUTZ
Rear Admiral, U. S. Navy
Commander-in-Chief, U. S. Naval Forces on Pacific Station

March 11, 1899

It being evident that the well armed Mataafa contingent had decided upon a plan of action not in agreement with our proposal, preparations were made to land in support of the British armed party then posted as a guard at their consulate and in the town for the preservation of peace.

COÖPERATION

Unity of command on shore was recognized as a prerequisite to success and in Samoa, in 1899, American sailors served under the direct command of a British officer and a party of British bluejackets was commanded by a young American.

The direction of operations of both the British and Americans on shore was placed under the immediate charge of Commander Sturdee, already well known in his own service as an officer remarkable for his activity and zeal. Years later, he was destined to serve his country with distinction as an admiral during the World War. It was a satisfaction to all of those in that landing party of nearly thirty years ago to feel that the keen eye and live supervision of Commander Sturdee continuously watched and guarded their interests and we were pleased to learn of his government giving him a decoration for his services shortly after the close of this affair.

Some weeks later, upon the arrival of Captain Stuart in the *Tauranga*, that officer relieved Commander Sturdee of the general control of the situation on shore.

FITNESS OF PERSONNEL

The crew of the *Philadelphia*, made up largely of men enlisted for service during the Spanish-American war, contained a far larger percentage of native-born Americans than had been usually found on board our vessels. They were a splendid lot, very formidable in boats and beach trenches, but in the jungles of the tropics they labored under serious disadvantages because of unfamiliarity with a form of conflict for which the Samoan warrior had been bred and in which he was a practiced adept.

The ship had been busily employed in covering the large area comprising her station and there had been no opportunity for drilling the landing force on shore—always an inconvenient exercise for a cruising unit.

Many of the crew had never fired a rifle and they were entirely without information of the art of bush warfare which they were now to be called upon to practice. Nevertheless, they responded cheerfully and willingly to the demands now made upon them, as has always been true of the American seaman. During the many days and nights that followed, fraught with danger and discomfort, they carried on without a murmur or complaint.

Our naval uniforms were poorly adapted for tropical service on shore. White clothes were too conspicuous and blues far too warm for a war conducted under a tropical sun, and there was no khaki available. The white caps for both officers and men are no better today as tropical headpieces than they were twenty-eight years ago. Our sailors envied the British seamen their dressy flannel undershirts while straw hats and the pith helmets worn by the British officers seemed very satisfactory for warm weather service. Our people had no tents and so had to improvise abodes in which the different contingents lived very primitively, supplementing the standard rations sent from the ships with fruits and other articles obtainable ashore.

THE LANDING FORCE

On the morning of Monday, March 13, numbers of boats filled with the Mataafa warriors left Mulinuu and disappeared to the westward while natives of the Malietoa party were seen to be coming into town from the bush. It being evident that the Samoans, who with some success in past years had opposed foreign interference, once again had determined to resist the demands of their self-appointed directors, preparations were made to land. Twenty-five men under the command of Ensign John H. Monaghan, with Naval Cadet Sweet as his junior officer, left the ship and pro-

ceeded to the American Consulate. This detail was relieved by the marines the following morning.

The next day a landing party consisting of the full guard of marines under Lieutenant Perkins, proceeded to the consulate and sixty-seven men under Lieutenant H. A. Field, with Ensign Monaghan as junior officer, then occupied lines beginning at and extending to the westward of the German settlement. Lieutenant Lansdale subsequently took over this command. A detachment under Lieutenant Brown and Cadet Babcock took up their residence at Mulinuu Point. Trenches were dug and walls of coral and sand erected where such were deemed necessary for protection from the bullets which the Mataafa snipers freely sprayed about, and shelters were built over these to furnish protection from sun and the frequent and violent showers.

Hostilities Begin

The Mataafa warriors having actively begun hostilities, on the afternoon of March 15, the *Philadelphia* and the *Royalist*, from their anchorages, bombarded localities over and behind Apia designated as in the possession of our opponents. The *Porpoise* left the harbor upon this occasion to fire on the woods back of Vailoa.

The *Philadelphia* wallowed deeply in the heavy swell, and in obedience to the orders of the captain, all guns were aimed and fired personally by the junior watch officer. Shells were not infrequently defective in those days when naval gunnery was neglected, and a premature burst from one, exploding over the U. S. Consulate, inflicted a severe injury to the leg of Private J. E. Mudge, U.S.M.C., who subsequently died as a result of this wound. A warm rifle fire was directed into the town by the Mataafa warriors which was continued after dark when, as subsequently became the practice, the ships' searchlights were brought into service. Numerous refugees—men, women and children—came to the *Philadelphia* for safety, and at about nine o'clock in the evening a party of twenty-two bluejackets, and marines under the command of Lieutenant Lansdale was sent on shore to reënforce our lines.

The next afternoon, the *Porpoise* stood out and buried the bodies of her men killed during the engagement of the previous day. During the afternoon the areas behind Apia were once more bombarded with unhappy results for the Ensign who again directed the artillery from the *Philadelphia*. A portion of a defective shrapnel fired from No. 7 six-inch gun, and exploding prematurely, went through the German Consulate, while other fragments struck the German gunboat *Falke*, anchored nearly in line. Apologies were promptly tendered to the Germans for this unfortunate episode, the responsibility for which our captain appeared to consider as possibly belonging to his young gunner.

The little war continued day and night in a very lively fashion. Mataafa natives posted in the brush back of the town constantly amused themselves by firing into the settlement, and their activities were particularly troublesome during the hours of darkness when rest was frequently broken by the sharp flashes and reports of musketry and the blast and concussion of shell fire. It being evident that foreign influence was to be strongly arrayed with them, the Malietoa forces were augmented from time to time by parties of warriors eager to participate in the excitement and brought from Savaii and outlying villages in Upolu by the *Royalist* and *Porpoise*.

On the morning of March 17, Private Thomas Holloway, U.S.M.C., was killed near our consulate. His body was buried at Mulinuu, together with that of a man from the *Royalist* also slain this same day. The *Philadelphia*, being the largest ship present, seemed a very popular refuge, though, as already mentioned, the vessel rolled deeply in the heavy swell sweeping through the reef.

Guard Trips

The paymaster of the British sloop *Royalist*, a splendid young fellow, acted as boat officer and once every day made a round of ships and camps in order to distribute mail and messages. An amusing incident occurred in connection with one of his cruises and on an occasion upon which he undertook to bring several missionaries who were desirous of seeking refuge to the *Philadelphia*. Upon approaching the ship, the gallant paymaster was observed to be seated in the stern sheets of his small dinghy and holding a pink parasol over the fairest member of his convoy. So engrossing was his pleasant occupation that he failed to care for his boat,

which managed to get itself under the lower grating of the *Philadelphia's* gangway, and, the ship, taking a heavy roll, the officer of the deck was horrified to see the boat, crew, and all passengers disappear beneath the waves. As there were numerous children embarked in the small dinghy, the situation was serious, but it seemed to the officer of the watch that at least half the men remaining on board ship immediately went over the side and the danger of the children drowning became less than that of having them injured in handling. Mothers were seen holding firmly to one end of a child while a bluejacket pulled with frantic eagerness at the other. Which part of the youngster remained above water was of minor importance to either of the would-be rescuers. Soon, however, the stronger efforts of the bluejacket prevailed and all of the shipwrecked party were recovered and brought aboard, wet but otherwise none the worse for their brief experience in the warm waters of the Pacific.

The Coronation of Malietoa

In order to impress upon the natives the fact that the governments of Great Britain and the United States were together in accepting and in recognizing Malietoa Tanu as the sovereign of Samoa, it was manifestly desirable to induct the king into office with due pomp and ceremony. March 23 was the day decided upon for the momentous occasion, which was one of splendor for the Samoans. In the proceedings, comedy was so intimately mingled with dignity that it was very difficult for youth to suppress smiles at times when such would have given offense to our serious-minded allies, to whom the ceremony meant much.

Malietoa, for some weeks, had been given refuge on board of one of the British ships, but it now seemed timely to place him in the house of the high chief and in the seat of government at Mulinuu. There he would be a neighbor of Tamasese, who, surrounded by his warriors, was looked upon and accepted as a leading figure in Samoan affairs.

The full dress uniforms of French and British naval officers, which had been discarded here years before and adopted by the Samoan high chiefs as imperial regalia, were located and these were donned by the two dusky monarchs. A search had been made for shoes which their majesties, the King and the Vice King, might wear. None of sufficient size to fit the vice regal foot of Tamasese could be found, but a pair of white canvas low cut shoes was unearthed into which would go the younger feet of Malietoa. Needless to state, to us their majesties looked neither comfortable nor imposing in their unaccustomed garments, and the eye of the observer could not but occasionally wander from the pair of huge brown feet belonging to the Vice King and protruding from the bottom of his gold laced trouser legs to the white canvas covering on the feet of Malietoa. An incongruity was apparent which to the western eye did not at all harmonize with the other splendors of the royal costumes.

The King and Vice King, perspiring freely and manifestly self-conscious, were conveyed to Mulinuu, seated on chairs placed in an ancient wagon drawn by a single bony and weather-beaten horse, preceded by a band and escort of British and American sailors. There the administration became formally recognized and, as the Samoan flag was raised at this point, the British and American ships anchored off Apia fired national salutes. Probably this is the only occasion where the sailors of the Navy of the United States have assisted so directly in the coronation of a king. The ceremony partook of the ridiculous but was carried through with dignity and solemnity, and probably it was deeply impressive to the Samoans. To me a detail particularly amusing and which closed the proceedings was the alacrity with which the giant Tamasese rid himself of his tight trousers and confining coat and resumed the comforts of his native lava lava. The young Malietoa, however, was manifestly pleased with the high honors shown him. He appeared to fancy his gorgeous apparel and while clad in it posed for his picture while attended by his bodyguard.

On the Conduct of War

The South Pacific is the area where today better than elsewhere in the world, effects of the penetration of western ideas can be definitely pointed out. There until very recently, strife constituted a normal and usual feature of everyday life. War between islands or communities being a commonplace incident a very slight reason was generally sufficient to result in a resort to arms.

Martial affairs, in which, usually, the loss of life was not great, generally took the place of the heated political controversies, and probably they replaced as stimulators the present day football games or the automobile or air races in a more advanced society. Battles have seemingly often supplied the zest to life in warm latitudes where other forms of diversion and excitement are not common.

From earliest times, in the South Seas, quite definite rules of war have existed, which, though unwritten, have been nevertheless scrupulously observed as regular and customary features of combat.

One rule observed in Samoa was that a chief could not be attacked, except by an enemy of his own rank. He, on the other hand, might attack any and all of his adversaries. If he fell, his head was taken as a trophy, while the ears of those slain of lesser rank were removed as souvenirs of victory.

A surprise assault was considered as entirely unethical and due warning was always given before battle. Generally, the assailant heartened himself and disturbed his victims by prolonged and loud chants, yells, and jibes, and by pounding on native drums.

The "Haka" as practiced in far off New Zealand is a type of an organized and wonderful prologue to battle, which was used probably for the last time in war by the Anzac-Maori contingent to bring terror to the hearts of the Turk in the trenches at Gallipoli. The efforts of our opponents, the Samoans, were less finished but along the same lines as those followed by the belligerent first tenants of the islands farther to the south.

One evening at Mulinuu, where an attack was expected at any time after darkness, the air was pierced by the penetrating blasts of a bugle. The author of the sounds evidently was not a master of music but he nevertheless understood noise making.

The British and American tars stood "to arms," trenches were manned at once, and weapons prepared. The noises continued to come from a point not far away in a cluster of palm trees and in the general direction of where a native sentinel had been posted.

The officer in command stole forth to investigate. He approached the spot with care and finally sprung upon a native youth who, seated behind a palm, blew lustily into a mouthpiece of a dilapidated bugle.

When dragged into camp, the native stated in reply to a demand for an explanation as to why he should disturb the quiet of the night when everyone was intent on listening for the enemy, that his friend had been posted as a sentry and that he and his boon companion understood that if a sentry slept, he would be killed, in accordance with American custom. He therefore had arranged a plan by which his bugle would insure the wakefulness of his "buddy."

H.M.S. "TAURANGA" ARRIVES

In the early afternoon of March 24, H.M.S. *Tauranga,* under the command of Captain Stuart, arrived at Apia and Captain Stuart became the senior British naval officer present. The *Tauranga* immediately landed a party of men to reënforce the British lines, bringing up to about two hundred and fifty the strength of the allied white forces on shore.

ASSISTING BRITISH LANDING PARTY

On March 31, Ensign Sellers with a cutter from the *Philadelphia* accompanied a landing party embarked in five British boats and three native canoes in an expedition against the natives to the westward of Apia.

HEALTH CONDITIONS

Fear of an epidemic among our men due to exposure, or among the natives because of the congested conditions at Mulinuu, gave constant and grave concern. The Samoans had very little knowledge of either surgery or medicine and were seriously opposed to losing a leg or arm, preferring death to mutilation. As a result of the close attention given to sanitation, health conditions remained normal. In this connection, the efficient and devoted services rendered by Passed Assistant Surgeon G. A. Lung and Assistant Surgeon H. E. Odell should be recorded. Both these officers were tireless and by them all camps and the native settlements were visited daily. They relieved much suffering and saved the lives of numerous natives who must have died of gunshot wounds had they not been given surgical attention. Thanks to them, Samoan ideas of what could be done for the unfortunate victims of illness or injury were al-

most completely changed, and as a result, the work of these two officers was continuously augmented in response to ever-growing demands.

The Expedition of April 1

For some time the investigation of the situation to the eastward of Apia had been under consideration, as the Mataafa warriors were reported to be encamped near Vailele and in the neighborhood of the German plantation.

Early Saturday morning, April 1, a column of British and Americans, accompanied by natives, conducted a reconnaissance in this direction for the purpose of discovering and breaking up the camp of the Mataafa natives.

Shortly before the departure of the expedition, H.M.S. *Royalist* weighed and stood to the eastward, close to the reef, with a view to keeping the party under the cover of her guns. The American sailors and marines were led by Lieutenant P. V. Lansdale, Ensign Monaghan, Lieutenant Perkins, U.S.M.C., and Passed Assistant Surgeon Lung. The British detachment was in charge of Lieutenant Cave and Lieutenant Hickman, R.N., of H.M.S. *Porpoise,* and all were commanded by Lieutenant Freeman, R.N., first lieutenant of H.M.S. *Tauranga.* The American force was made up of sixty officers and men, including twenty marines. The British force was composed of sixty-two officers, seamen, and marines. The friendly natives present numbered between 100 and 150, indifferently armed and without discipline.

With the column went interpreters Mackie, Scanlon, George Reid, MacDonald, Missionaries Wright and Hendrickson, of the Mormon mission, and the secretary to the consul general, who had volunteered as an aid.

The expedition proceeded eastward for about a mile and approached a village called Matafagatele, where it halted. H.M.S. *Royalist* was then shelling the village and upon signal from the shore her fire ceased and the column then advanced farther along the beach.

Reaching Fagalii it stopped for fifteen or twenty minutes, while the friendlies reconnoitered the higher ground in advance. The party then forded the Fagalii River, and took the road leading into the Vailele plantation, which brought the column, after a march of about a mile, to the village of Letenga held by the Mataafa faction. The forces did not go to this village, but halted a short distance away at a point where the road suddenly drops into the ravine in which the village is located. Freshly cooked food, still warm, was found in the houses, showing that the villagers had suddenly and shortly before been driven away by the firing of the *Royalist.*

Here at about 3:00 P.M., not a single hostile having been seen, it was decided to return by the same road and the movement was begun with the troops in reverse order.

As the column was passing the first cross-road, hostile natives were discovered on the left flank about 300 yards distant. Our people immediately opened fire and about a dozen hostiles scurried across the road apparently uninjured. The Colt gun failed to operate and was taken apart, readjusted, and successfully tested.

The route of return was then changed. Instead of going back immediately to the beach it was decided to return by a road half a mile or more back from the sea and running more or less parallel with the shore line. This road led through extensive cocoanut plantations, and extended along the lower levels of the foothills, interrupted in three places by deep ravines through which ran small streams. It was the intention to follow this road to a point where it swung to the north and thence march back into the town of Apia.

The column continued to the west by the road parallel to the sea, and proceeded until reaching the Fagalii River. As the road leads through the ravine at this place it winds in several curves, thus making easy grades on both slopes. Using great caution against a surprise, the party passed through this depression and up, on double time, to the next level stretch of road, where the natives had prepared an ambush.

The Ambush

On the left the terrain in this vicinity sloped gently upward for a distance of fifty or seventy-five yards, where it formed a crest extending parallel with the road. On the right and towards the shore line it was a little more level, extending back from the road about fifty yards, where it dropped off abruptly, for forty or fifty feet, into a

swampy patch nearly level with the sea. Both sides of the road were lined with a barbed wire fence about five feet high of six or eight strands of wire very securely fastened to trees and posts. This obstruction could not be readily broken down and our men were not equipped with instruments for cutting the wires. A similar fence fringed the edge of the level land where it dropped off into the swamp. The trap was well prepared and the situation was a most unfavorable one for our small column.

Suddenly, as the leaders reached the level road and before the rear guard of British marines and friendlies had emerged from the ravine, fire was opened on the left of the column. The hostiles behind a ridge were well intrenched and could fire at will, resting their rifles on the crest of the ridge and being concealed by short grass. Our people, first apprised of the presence of the enemy by the reports and smoke of rifles extending the entire length of the left flank, a distance of 100 yards or more, dropped into the ditch at the side of the road and promptly returned the volleys. The Colt gun failed again and this fact helped to bring on the disaster that followed. Our men continued their fire, while endeavoring to advance down the road to the westward. It was soon noticed that the enemy was closing around the rear of the formation and a few minutes later they began to appear around the head of the column, all the while maintaining a very vigorous fire. A retirement became imperative and, accordingly, a retreat in good order was accomplished toward the beach through the barbed wire fence on the right and into the field on the north side of the road.

A stand was now undertaken but the enemy, concealed by natural ridges, closed in while our party was exposed on a level spot, where but poor protection was afforded by scattered cocoanut trees. Here within a few minutes two of our sailors, two British bluejackets, and two friendly natives were killed and at this place, Lieutenant Freeman was slain and Lansdale struck by a bullet which broke his leg below the knee.

The Colt gun had been employed extensively on the several excursions into the bush back of Apia made during the last ten days of March. Very few natives had been observed on these occasions, but when seen and fired upon with the Colt automatic they fled in terror. Lieutenant Lansdale had great reliance in the gun, frequently operating it himself. Valuable time had been lost in overhauling the piece and in trying to get it through the wire fence. Lieutenant Lansdale, however, was loath to abandon it, but the fire was so galling that before he was wounded he was compelled to scatter important parts and leave it behind.

Death of Lansdale and Monaghan

Lansdale, unable to march, was assisted by his men, one of whom, N. E. Edsall (ordinary seaman), was mortally wounded while so doing. It is not clear when Lieutenant Lansdale received the wound later discovered in his chest, but it is certain that when Ensign Monaghan observed that his senior was wounded he used his best endeavors to convey him to the rear, and seizing a rifle from a disabled man, made a brave defense. Undoubtedly Monaghan fell very shortly thereafter when hostile natives, flushed with success, bore down on our men in his vicinity. To quote from Captain White's report: "The men were not in sufficient numbers to hold out any longer, and they were forced along by a fire which it was impossible to withstand. Ensign Monaghan *did* stand. He stood steadfast by his wounded superior and friend—one rifle against many, one brave man against a score of savages. He knew he was doomed. He could not yield. He died in heroic performance of duty."

The Retreat

In a short time everybody remaining on the high ground came through the second wire fence in a confused retreat, floundering, staggering, and falling in the deep mud, tangled grass, and trees. The enemy followed persistently and poured in a terrific fire.

The retreat continued for a quarter of a mile until the beach was reached, and here Lieutenant Perkins gathered together his and a few British marines. This officer did not know of the loss of the officers in command of the bluejackets until arrival at the beach, and he therefore did not assume command of the entire American force during the latter part of the action. "He commanded his own detachment in a creditable manner." Upon reaching the shore Surgeon Lung assumed command of the bluejackets.

H.M.S. *Royalist* had remained nearly abreast of Fagalii and the place where the party emerged from the jungle. She now fired several shells into the ravine just left of our people, whereupon the fire of the enemy ceased. Just after resuming the march a British bluejacket ran down from the ravine, made straight for the sea and was picked up by two boats containing reënforcements from the *Royalist*. It was discovered that the man had lost his right ear and from appearances, it had been cut off, though he insisted that it had been shot away. He was very much dazed and evidently had been hit by a grazing shot and stunned. The enemy, thinking him dead, had then cut off his ear. At that moment a shell arriving from the *Royalist*, the natives ran, the bluejacket then happily recovered consciousness and fled.

Casualties

Upon this unfortunate occasion the following were killed:

Lieutenant Freeman, R.N., and two British bluejackets.
Lieutenant Lansdale, U.S.N.
Ensign Monaghan, U.S.N.
J. Butler, coxswain, U.S.N.
N. E. Edsall, ordinary seaman, U.S.N.

The British had two men wounded and the five following named men from the *Philadelphia* suffered injuries from rifle fire:

E. Andrews, fireman second class.
J. C. Johns, landsman.
J. W. Laird, landsman.
J. H. Wellington, coxswain.
J. F. McCarthy, private, U.S.M.C.

There were also numerous casualties in the friendly Samoan contingent.

The enemy beheaded all the officers killed, and in the case of the enlisted men they cut off the right ears of the British and both ears of the Americans. Lieutenant Freeman's ears were also removed.

Enemy Forces

The best information available was to the effect that there were several hundred natives in the party which conducted the ambush and from sources that appeared reliable it was reported that about forty were killed and some fifty wounded.

Commendations

With regard to the services of Dr. Lung, Captain White states the following in his report of this affair:

> From conversations with British officers and our own men I am gratified to be able to commend in the strongest terms the work of Passed Assistant Surgeon G. A. Lung. At times when the fire from the concealed natives was thickest, and at all times, by his example, he encouraged the young and inexperienced men to the proper performance of duty. On the completion of the work of his profession he assumed command of our bluejackets and marched them to the United States Consulate and reported to me, reaching there at dusk.

Captain White further states:

> I have to commend the steadiness of E. D. Fisher, gunner's mate first class, in charge of the Colt automatic gun, for coolness and steadiness in twice dismantling and overhauling the gun under fire. J. S. Ranlet, ordinary seaman, assisted Ensign Monaghan in binding up Lieutenant Lansdale's leg with a neckerchief belonging to B. Callaghan, blacksmith, and assisted in carrying him when first wounded.

Burying the Dead

At daylight Sunday morning, April 2, Chief Tamasese, with a strong contingent of natives, visited the scene of the ambush of the day before and brought in the seven bodies of the British and American dead. During the afternoon, these were buried with customary honors beside those in our little cemetery at Mulinuu. Later in the day, the heads of the three officers were brought in and the bodies were exhumed and the heads placed in the caskets.

Hard service forms close attachments and it was a very sad Easter Sunday for the associates of those who had made the supreme sacrifice in this far-off place. The memory of the still, hot morning, of the air laden with the scent of cocoanut oil and of tropical vegetation, of the flies and the general depression, incident to the loss of friends and shipmates, must always last in the minds of those present.

Reprisals

The Americans and British were keen to punish their enemies for this disastrous encounter. It was reported that before the ambush occurred, the column had met and interviewed the manager of the German plantation and that he had informed Lieutenants Lansdale and Freeman to the effect that no natives were about. The idea that

the Germans had been concerned in the affair, directly or indirectly, stirred a feeling of intense resentment on the part of the Americans and British and this feeling of bitterness had not been softened by the attitude of aloofness assumed from the first and since continued by the German element ashore and on board the *Falke*.

On Monday, April 3, an extensive bombardment was carried on, the British ships getting underway for the purpose; the *Porpoise* proceeding to the westward while the *Royalist* and *Tauranga* operated to the eastward of the port. These vessels, together with the *Philadelphia*, shelled areas back of the town but damages could only have been slight as the ships fired at points where the natives were supposed to be but where precise targets were not well defined.

During the next few days the British vessels were active in moving along the coast and attacking the villages of the Mataafa party. The *Philadelphia's* steam launch accompanied these expeditions and her one-pounder gun was used in covering landings.

Bad Weather

The barometer began to give indications of unsettled weather, and on April 5, the *Philadelphia* was swung around and headed to sea and a stern anchor carried out to hold her in this direction. Conditions remained somewhat ominous with rain and wind for several days and all ships prepared to weigh and leave their anchorages, untenable in a gale. The *Falke* finally stood out and was absent for several days and until the weather cleared.

The Last Sortie

On April 12, the junior watch in command of the first steamer of the *Philadelphia* accompanied H.M.S. *Porpoise* to the eastward and covered a landing by a native contingent under the command of Lieutenant Guy Gaunt. On this occasion a native village was burned after opposition in which two or three of our friendly natives were wounded.

Coaling

On April 13, the *Philadelphia* got underway to coal from the small supply maintained at Pago Pago. Remaining in that port until the evening of April 17, the ship again departed, taking with her a party of fifty native warriors from Tutuila, who, under the command of their chief Mauga, had decided to participate in the war at Apia on the side of Malietoa.

Proclamations to the Natives

On April 21, H.M.S. *Torch* arrived with news from the outside world and instructions as to future proceedings.

In compliance with the latter, the following proclamation was issued:

Apia, Samoa, April 23, 1899

To High Chief Mataafa and all other chiefs acting with him:

Whereas we have received official information from our respective governments that a commission, representing the three signatory powers, will sail from San Francisco in a few days for Apia, with power to adjust existing difficulties in Samoa, we therefore, in the interest of peace, direct that you and your people keep beyond the following limits, to-wit: A line drawn from Falcula, the western limit, in a southern direction to the Tuasivi, and on the east of a line drawn from Laulii in a southerly direction of the Tuasivi.

By complying with this order you will avoid conflict with our forces. A prompt compliance with the conditions herein set forth will be required.

We await your reply.

Albert Kautz
Rear Admiral, U. S. Navy
Commander-in-Chief, U. S. Naval Forces on Pacific Station

Leslie C. Stuart
Captain, Royal Navy
Commanding Her Majesty's Ship "Tauranga" and Senior Naval Officer

On this same day a skirmish of considerable extent took place in the rear of the town between our native contingent and the Mataafa forces.

On April 25 the senior American and British naval officers issued the following proclamation to the natives who apparently were not desirous of considering favorably the proposition extended to them two days before:

Apia, Samoa, April 25, 1899

To High Chief Mataafa and the chiefs acting with him:

We have received your letter of yesterday and regret that you seem to have no appreciation of the generous proposition made to you and that you oblige us to use force.

We now give you notice that if you and your people are not outside the limits prescribed in our letter of the twenty-third instant, we will open

fire on your forces wherever they can be reached in Samoa, after 8:00 A.M., April 26.

ALBERT KAUTZ
Rear Admiral, U. S. Navy
Commander-in-Chief, U. S. Naval Forces on Pacific Station

LESLIE C. STUART
Captain, Royal Navy
Commanding Her Majesty's Ship "Tauranga" and Senior Naval Officer

The natives complied with the order of the Commander-in-Chief and active hostilities now practically ceased.

A FAREWELL DINNER

On the evening of April 28, Lieutenant Guy Gaunt gave a remarkable farewell dinner to the senior British and American officers and to the others who had served with him at Mulinuu, the setting of which could not be equalled on any stage. The party was seated about a long table set on the grass among the cocoanut trees and thatched native huts at Mulinuu. Illumination was supplied from huge bonfires. Hundreds of natives in gala attire gathered around to observe the ceremonies, and at the close of the dinner competitive siva dances took place. Highly trained dancing teams of many settlements, not only from the Island of Upolu but from Savii and Tutuila, participated in what was probably the largest and most spectacular performance of its kind ever given in Samoa.

SHIP MOVEMENTS

On April 29, the collier *Brutus*, commanded by Captain Cottman, arrived with much needed fuel.

On Tuesday, May 2, we witnessed the departure of H.M.S. *Royalist*. The *Philadelphia* manned the rigging and cheered ship as she passed, all hands regretting the end of association with those of this old sloop who had served with us so well during many trying days. The arrival of the *Mariposa* during the evening of this same day brought five much needed officers to the *Philadelphia*.

THE END OF THE WORK

On May 3, the command of Mulinuu was turned over to the British, and the American party at that place moved into the town of Samoa and was merged into the command of Lieutenant H. A. Field, who had succeeded Lieutenant Lansdale in command in Apia.

The arrival of the vessel assigned to transport the commission detailed to investigate the situation was eagerly awaited. Early in the morning of Saturday, May 13, the U.S.S. *Badger*, a naval auxiliary, arrived bringing the expected delegates from the German, British and American governments.

With the arrival of the peace commissioners, the pacification of the natives became a problem for that body. The *Philadelphia's* work was ended. Our landing force was withdrawn from the beach and, on May 16, coaling from the *Brutus* was begun in preparation for a return to Honolulu.

On the afternoon of Saturday, May 20, a party was sent ashore to disinter the remains of Lieutenant Lansdale and Ensign Monaghan and to bring them back to their shipmates for transportation to San Francisco. After the accomplishment of this sad duty, on the morning of May 21, the flagship departed on her homeward voyage to the northward, heartily cheered by her consorts remaining at Apia.

HONORS TO THE MARINES

The Marine Corps included the Samoan affair as among those to be marked by their campaign badge.

Sergeants B. A. Forsterer and M. J. McNally and Private Henry L. Hulbert were given letters of commendation by the Secretary of the Navy, and each received the Congressional Medal of Honor for distinguished conduct in the presence of the enemy.

Private Hulbert, an outstanding figure in the affair of April 1, was made a noncommissioned officer immediately and this splendid soldier, after a magnificent exhibition of gallantry and devotion to duty, ended his long career under the colors, on the fields of France in 1918 as a first lieutenant of marines.

CONCLUSION

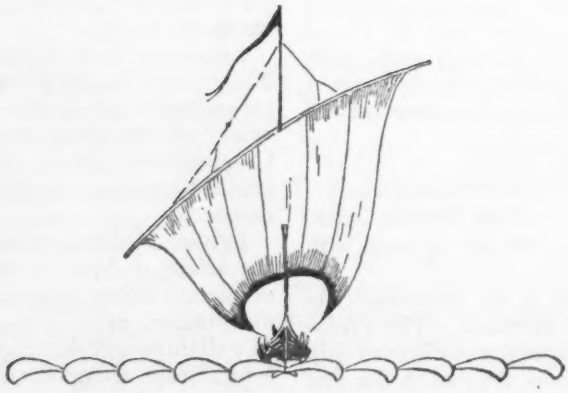
The coöperative effort of the *Philadelphia* upon this occasion was passed by the Navy as a mere incident of service and since has dropped from the recollection of all except those who were participants therein.

The years that have passed since 1899 have seen radical alterations in the management of Samoa.

The three governments that then had concerned themselves with conditions thereabouts promptly decided that a change from

the "tripartite" plan was necessary. By the Anglo-German agreement, ratified in Washington in January, 1900, Great Britain withdrew from the Islands, and Germany was given Savaii and Upolu, with the smaller islands nearby. Germany relinquished to England her claim to the harbor of Vavau in Tonga and made other concessions in the Solomon Group and in Zanzibar. The United States acquired Tutuila and the smaller islands to the eastward, the 171st meridian being decided upon as separating the United States and Germany in the Pacific. The Samoan affair then was closed insofar as the United States was concerned.

During the World War, years later, for the first time in the history of the British Empire, one of its dominions provided the invading force sent overseas to capture foreign territory, and on August 30, 1914, an expedition from New Zealand took possession of German Samoa so that today Great Britain and the United States are close neighbors in this remote and now peaceful corner of the Pacific.



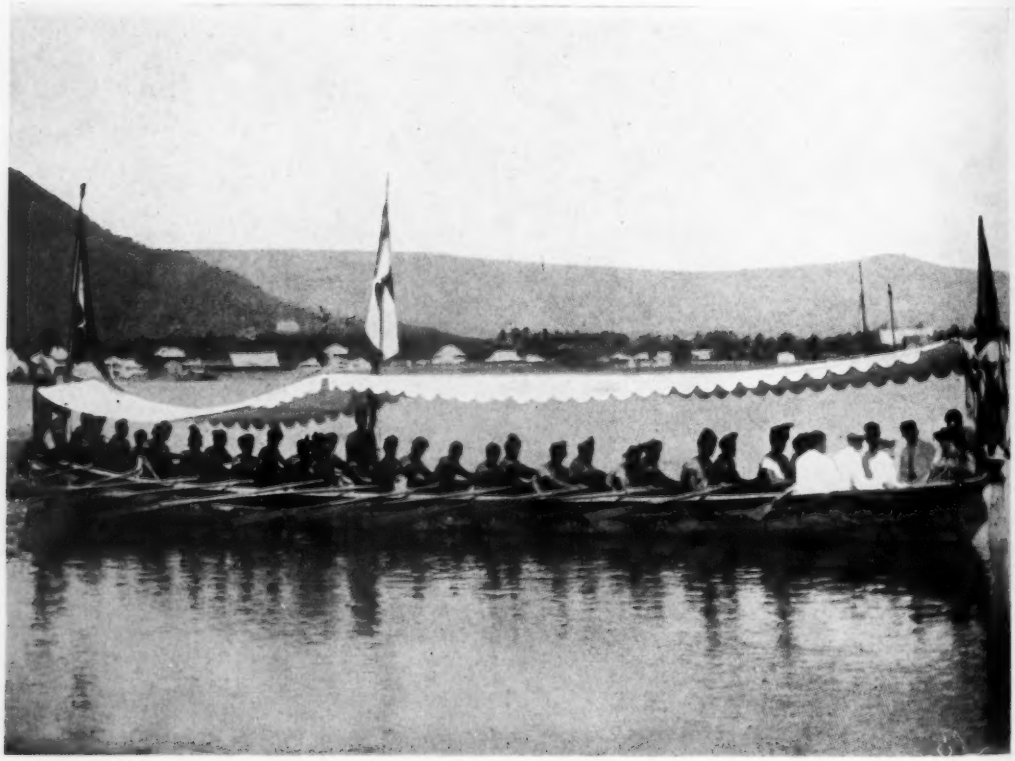
WHARF OF THE GERMAN FIRM IN APIA

During the days when the United States, England and Germany were striving for supremacy of influence in the Islands. Possibly "commerce was following the flag" in those days, too.

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

THE LITTLE TOWN OF APIA, SAMOA, AS IT WAS IN THE "NINETIES"

HOME AND STORE OF A PETTY TRADER



Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

VILLAGE BOATS WITH MANY OARS HAD REPLACED THE SAILING CANOES IN THE "NINETIES"
Here is shown a Papalangi (friend) being taken off to the steamer.

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Village *Taupo* and Two of Her Attendants

A *Taupo* is the official maid of the village whose chief function is to be hostess of visitors. She often used to lead the tribe in battle and was held sacred by her tribe's enemies.

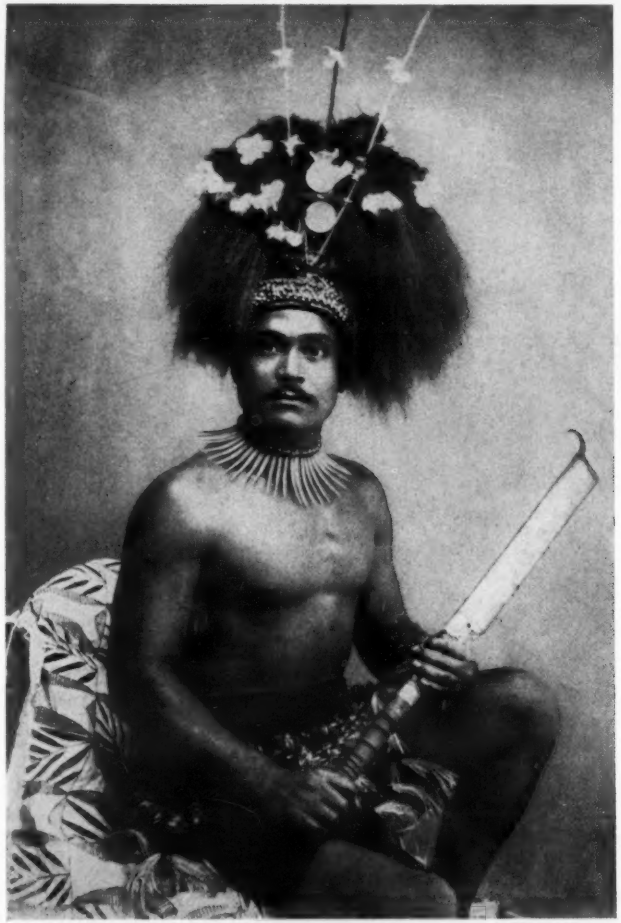
A Solomon Island Black Boy

Brought as a laborer to Samoa to work on the German plantations back in the "Nineties." Samoa had her problem with the slaves also.

Courtesy of Mrs. Llewella Pierce Churchill

FIJI ISLANDERS AND THEIR BOAT ON A VISIT TO SAMOA

FIJI ISLANDERS AND THEIR BOAT ON A VISIT TO SAMOA



Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

THE *Manaia* (BEAU) OF THE VILLAGE AND ESCORT FOR THE *Taupo* AT FORMAL GATHERINGS. HE HOLDS A BEHEADING KNIFE

A *Taupo* OF A VILLAGE ON THE ISLAND OF SAVAII

A *taupo* would scarcely feel clad without her *tuinga* or headdress.

Courtesy of Mrs. Llewella Pierce Churchill

THE AMERICAN CONSULATE, VAILA, APIA, SAMOA

Mr. William Churchill, deceased husband of Mrs. Churchill, was a former Consul-General, and is seen standing at the head of the steps. The mountain in the far background is Mt. Via, upon whose sides is the tomb of Robert Louis Stevenson. The flag pole was made from the flag staffs of the wrecked American ships—the lower portion from the *Trenton* and upper portion from the *Vandalia*.

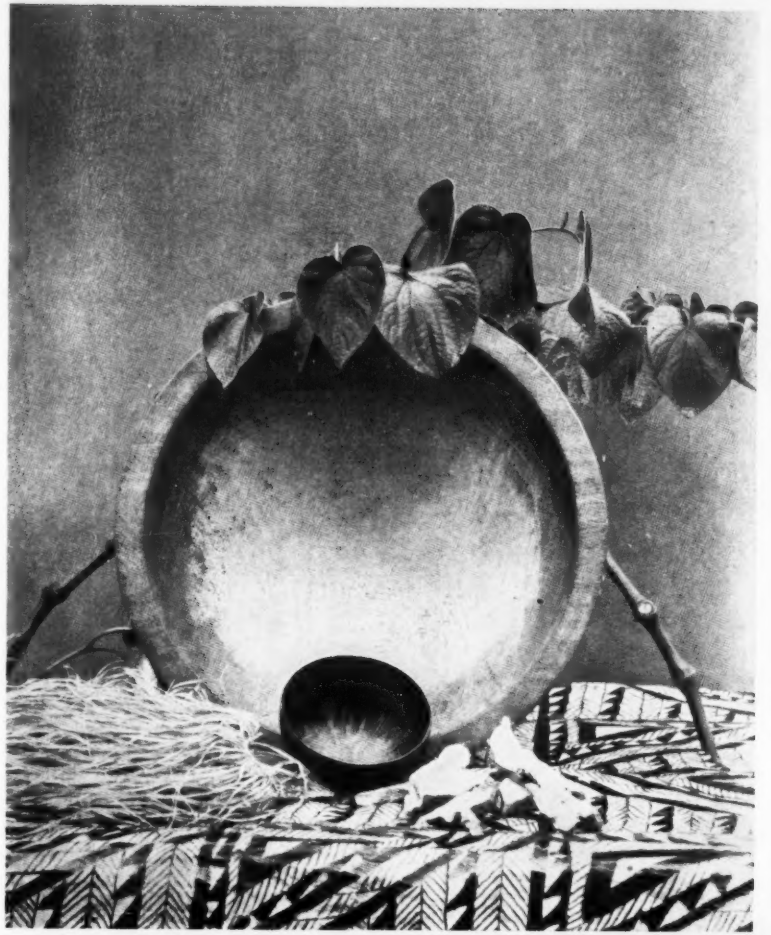
A Village Lad of Fourteen Being Tattooed From Waist to Knees in a Solid Pattern Following Native Custom

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

Baked Pig for a Samoan Feast

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Samoan Child *Taupo* Who Sometimes Makes the Kava. The Cup and Bowl for Preparing the Ingredients are Shown Above



A *Kava* Cup and Bowl and the Things Necessary to Help Produce the Native Drink Except the Water and the *Taupo*. Of Course the Drink is Alcoholic

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Samoan Child *Taupo* Who Sometimes Makes the Kava. The Cup and Bowl for Preparing the Ingredients are Shown Above

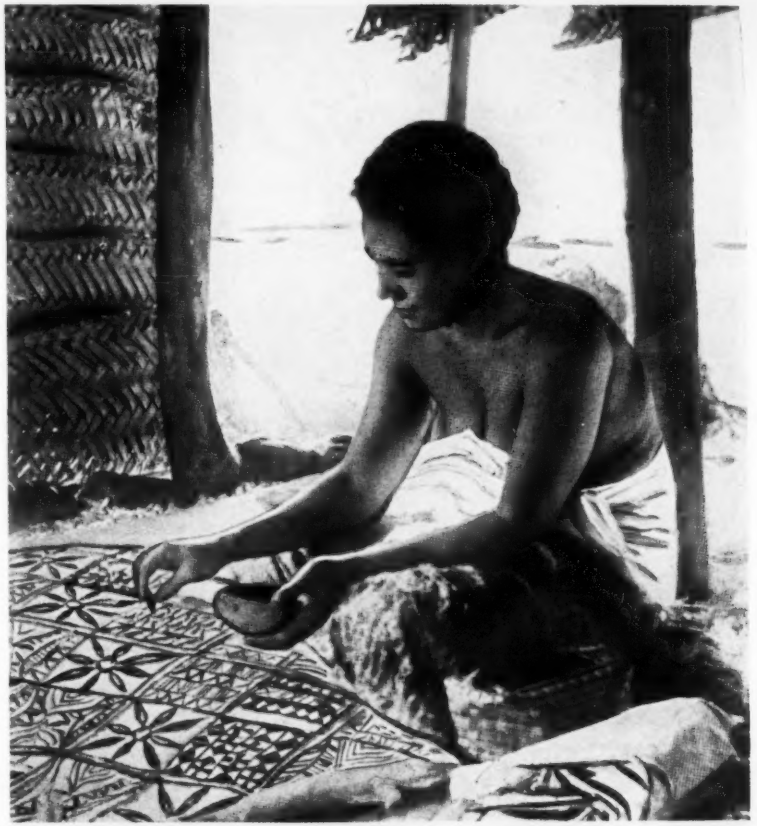
A *Kava* Cup and Bowl and the Things Necessary to Help Produce the Native Drink Except the Water and the *Taupo*. Of Course the Drink is Alcoholic

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Native Samoan Orator

On all occasions of importance his badge of office is the fly flapper, which he holds in his hand or carries over his shoulder—as he sees fit.

Facafogafoga	Give attention
O Samoa Cuma	All ye Samoans
Seci cou fai atu	While I declare
O locu facatusa	My parable



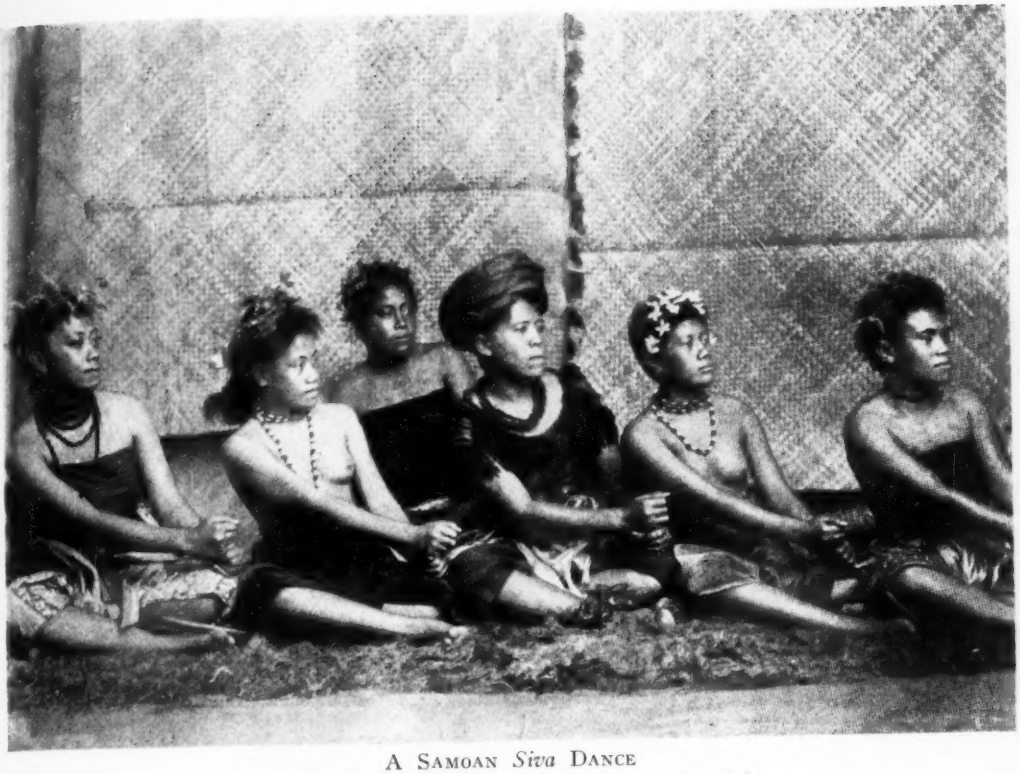
Painting the *Siapo*

The brush is a pandanus nutlet. The *siapo* is a native cloth.

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

THEY LIVE AMONG A WEALTH OF VEGETATION
A former Pago-Pago beauty of the Island that became United States territory in 1899.

A VILLAGE BELLE OF FORMER YEARS, APIA, SAMOA



A Samoan *Siva* Dance
The village *Taupo* and her train of dancing girls.

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"
A Samoan *Fale* (House) is Merely a Roof of Thatch Set up on Posts

A Village Belle of Former Years, Apia, Samoa

They Live Among a Wealth of Vegetation
A former Pago-Pago beauty of the Island that became United States territory in 1899.

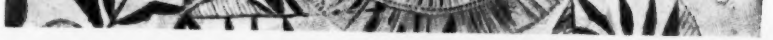
Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Young Samoan Girl Showing the Completed Painted *Siapo*

A Samoan Child in Her Finery of Beads, a Fine Mat, and the Hibiscus Blossom Tucked Over the Ear

Courtesy of Mrs. Llewella Pierce Churchill—from her "Samoa 'Uma"

A Young Samoan Girl Showing the Completed Painted *Siapo*



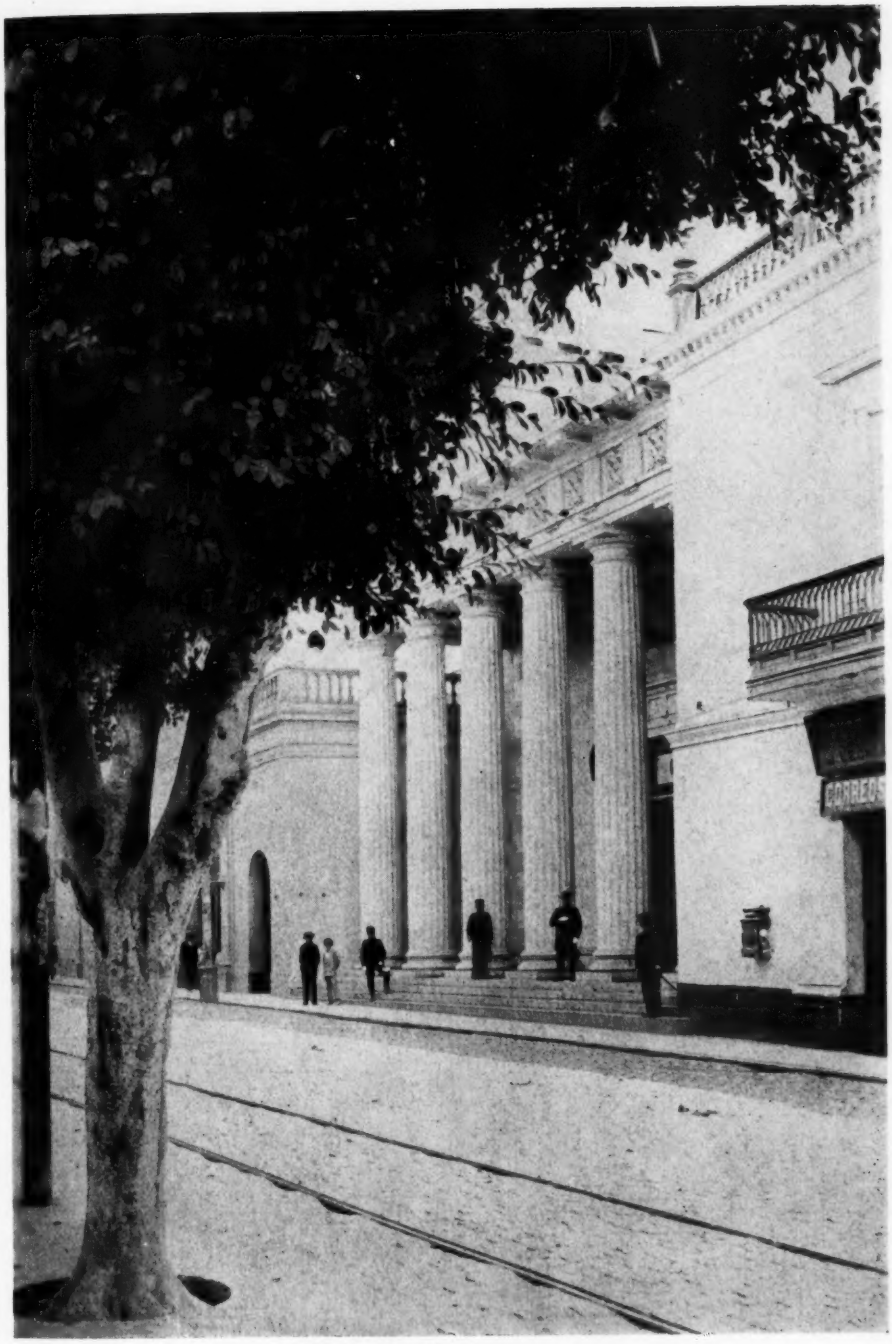
A Samoan Child in Her Finery of Beads, a Fine Mat, and the Hibiscus Blossom Tucked Over the Ear

Courtesy of the Pan-American Union

Bolognesi Park and Statue, Lima, Peru

Courtesy of the Pan-American Union

THE BOLOGNESI MONUMENT, LIMA, PERU



Courtesy of the Navy Recruiting Bureau, New York

THE SENATE BUILDING, LIMA, PERU

Courtesy of the Navy Recruiting Bureau, New York

ZOÖLOGICAL GARDENS, LIMA, PERU

An Ancient Overseas Campaign

By COMMANDER W. C. I. STILES, *U. S. Navy*

MASTERS of the art of war have repeatedly assured us that, whereas the weapons employed by fighting forces and the technique of using them to best advantage change from age to age, and even from year to year, the broad principles of strategy are fixed and unvarying throughout the ages. That "history repeats itself" has become a proverbial expression, and one is struck, in the examination of records of early campaigns, with the similarity which these operations bear to some of the most recent events of history. Similar situations lead to similar developments, we see the same mistakes committed both in ancient and modern wars, and can observe these mistakes bringing upon their authors the same inescapable penalties.

Accordingly, it is proposed to examine briefly the great and disastrous overseas expedition conducted by the Athenians against the city of Syracuse in 415 B.C. Such a campaign should have particular interest for us in the United States as, due to the absence of powerful neighbors, any serious war in which we are likely to become involved is almost certain to take the form of a great overseas expedition. Perhaps we may be launching such an expedition against a distant enemy, perhaps we may be defending our own shores against such a threat. In any case, the decisive power to enable us to impose our will on a resolute enemy, or the unendurable pressure necessary to bring us to our knees, can only by this means be applied. Let us therefore take thought from any lessons which may be derived from one of the earliest expeditions of this kind since history was first recorded with accuracy and detail.

At the time of the events in question, the Greek civilization dominated the eastern and central Mediterranean in much the same way as the European civilization dominated the world at the opening of the World War. In general culture, in the arts of peace and war, in personal courage and in physical perfection, the Greeks were the superiors of all the races with which they were in contact. The one thing which prevented them from dominating the known world was their inability to formulate any understanding among themselves. In government they had failed to realize anything approaching racial unity. Though they had united temporarily to throw back the Persian invasion, their confederation had crumbled at once when this menace was removed. Thereafter petty jealousies and partisan politics held sway. Thus they squandered, in warfare between their cities, the strength that might have made them the masters of the world; and their artistic and cultural excellence was passed on to the world through the less brilliant but more robust civilization of Rome.

In the fourth century, B.C., Greek colonies had spread to the westward from the home country to the south of Italy. They had overrun the island of Sicily, displacing, or at least Hellenizing, the former inhabitants; and had even extended to Corsica and Marseilles. However, they were a house divided against itself. Sicily, rich in corn and wine, was parcelled out among a dozen or more rival cities with mutual alliances or antagonisms. Some were bound by ties of blood or friendship to the various cities of the home country; some, through a large admixture of Phœnician population, looked to Carthage for support against their rivals.

Chief among the cities of Sicily was Syracuse. Situated on an excellent natural harbor in the southeast corner of the island, and backed by a hinterland of extreme fertility, she had long been a center of commerce and culture, and had from time to time exerted a sort of over-lordship over some of the smaller and less powerful cities of the island. Under her leadership, a great invasion by Carthage had been defeated and almost annihilated. As a result she grew rapidly in wealth, prestige and architectural magnificence. But meanwhile there was quietly being built up among the lesser cities

ZOÖLOGICAL GARDENS, LIMA, PERU
Courtesy of the Navy Recruiting Bureau, New York

subject to her sway a spirit of envy and distrust, which was almost to be her undoing in the hour of her need.

The spark which was to ignite the flames of war was found in a perennial quarrel between Egesta and Selinus, two cities in the western end of Sicily. Egesta was more nearly Carthaginian in character than the other cities of Sicily and, being worsted by its rival, applied for help from Carthage, which was refused. Selinus meanwhile sought and obtained the aid of Syracuse. The adjacent city of Leontini however, seeking relief from fancied oppression by Syracuse, allied itself with Egesta, and the two cities dispatched an embassy to Athens, seeking the aid of that powerful city in a campaign to overthrow their domineering neighbor.

Though the Athenians had no great direct interest in the outcome of this quarrel, it so happened that the times were particularly propitious for the favorable reception of such an embassy. A new generation had come up since the great victories over the Persians at Marathon and Salamis, a generation imbued with martial ideals but without the realization of the costs of warfare. Meanwhile commerce had flourished, and wealth and prosperity greatly increased. The dream of conquest, and even of world domination, was one to take ready hold on the popular mind.

As in modern times, appeal to the masses was made on the basis of high-minded, disinterested support of an oppressed ally. Nevertheless, self-interest, either real or fancied, was, as usual, the guiding principle which impelled the leading Athenians to advocate this venture. The underlying basis of these considerations was economic. Athens owed her prosperity to commerce and manufacture, and not to agriculture or natural wealth. Her own soil was mostly barren and incapable of supporting her population. Imports of grain were essential, and these must be paid for from the profits of her overseas commerce. To the eastward the routes of her shipping were commanded by the Persians. To the westward lay a fruitful area for her commerce, as well as the fertile grain fields of Sicily from which the needed supplies could readily be drawn. It is natural then, that the rise of Syracuse to a dominating position in this locality should be viewed with greatest concern. Should the extension of her influence proceed unchecked, she would shortly be in a position to dictate her will to the Athenians. However, if her prestige could be seriously weakened and her influence in Sicily replaced by that of Athens, the vital supply of food-stuffs would be secure, and a renewal of the Peloponnesian war might be undertaken without misgivings.

The arguments in favor of this expedition were eloquently and vigorously put forth by one of the leading political figures of the city, Alcibiades by name. A man of outstanding personal attractiveness, great wealth, abounding enthusiasm and general reputation both as a military leader and a politician, he not only advocated the expedition persistently, but claimed the right to command it. Modesty was not among his virtues. "It belongs to me above all others," he said, "to be in command, and to tell the truth I consider myself worthy of it."

His chief political opponent, an experienced general named Nicias, was a bit apprehensive over the proposition. Cautious almost to the verge of timidity by disposition, he was reluctant to undertake what might prove to be a long and arduous campaign against a newly acquired enemy, while still faced with the realization that the Peloponnesians only awaited returned strength and a favorable opportunity to renew their struggle with Athens. However, so universal was the popular reaction in favor of this project, that he did not consider it expedient to oppose it openly. Instead, he called attention to its difficulties, and to the great preparations necessary for it, thinking that this would chill the general enthusiasm. The people, nevertheless, readily voted for all the preparations he considered essential, and the work of assembling the necessary force, with ships, accouterments and supplies was actively put forward.

Alcibiades, the impetuous enthusiast; Nicias, the cautious conservative; and Lamachus, probably the most accomplished leader of the three, were appointed jointly to command the expedition. This arrangement may seem remarkable to us, but in those days it was not an uncommon one. All three were well versed in both the military and naval science of the day. Indeed the Greek title, "strategos," which they bore was applied indiscriminately to both military and naval commanders. In such a divided command the enthusiasm of one leader would be tem-

pered by the caution of another. There would always be a majority of opinion on any question, and, though extreme brilliance was not to be expected, there was less likelihood of serious errors being committed than under the command of a single individual. Altogether, as compared to the modern system of entrusting the command of the naval forces of an expedition to an admiral and that of the military forces to a general, each with a special viewpoint and a distinct responsibility and sphere of action, the system was, if anything, less open to objection.

Preparations went forward apace. An army of five thousand heavily-armed troops was assembled and equipped; together with the light-armed slingers and bowmen, catapults and ballistas, and all the auxiliaries which went with such a host. No cavalry was provided, and the lack of horsemen was severely felt in later operations. The problem of transporting horses and their bulky fodder has always been a most difficult one in any overseas expedition, and, though this difficulty may be greatly relieved by the development of mechanical transportation, it will doubtless always present most serious complications.

For the transportation of this force, over a hundred triremes were provided. Sixty of these were regular war vessels, each manned by about 200 oarsmen pulling three banks of oars one above the other. Their principal weapon was the ram, but their upper decks were crowded with slingers and archers, as well as heavily-armed soldiers prepared to board the enemy sword in hand. They carried sail, and could make fair progress in a favorable wind, but, being entirely unequipped with cooking or even sleeping facilities for their complements, were forced to move along the coasts, except for short sea passages at favorable opportunities. Ordinarily their crews landed at night, pulling their ships' sterns up on a sandy beach with an anchor to seaward, and camping on the shore.

The internal organization of these ships is interesting. The hull and masts were provided by the state, but the light spars and equipment were supplied by civilians, who thereby became exempt from other obligations. Such a man was known as a "trierarch." He paid the crew, and either supplied their provisions, or provided them with a ration allowance in money. In addition, he commanded the ship, either in person or by deputy. Below him in authority was an official who had particular charge of the rowers, assisted by two inferior officers, one on each side. The rowers were not slaves, but free citizens—though they were not considered of equal rank with the heavily-armed soldiery. Their pay was about $1.80 per month in our money, and their monthly ration allowance about equal in value. In addition to the rowers, there were special bowmen who handled the anchor gear, acted as lookouts and directed the steering; also sternmen who operated the two steering oars, one on each quarter; and a flute player who gave the time to the stroke.

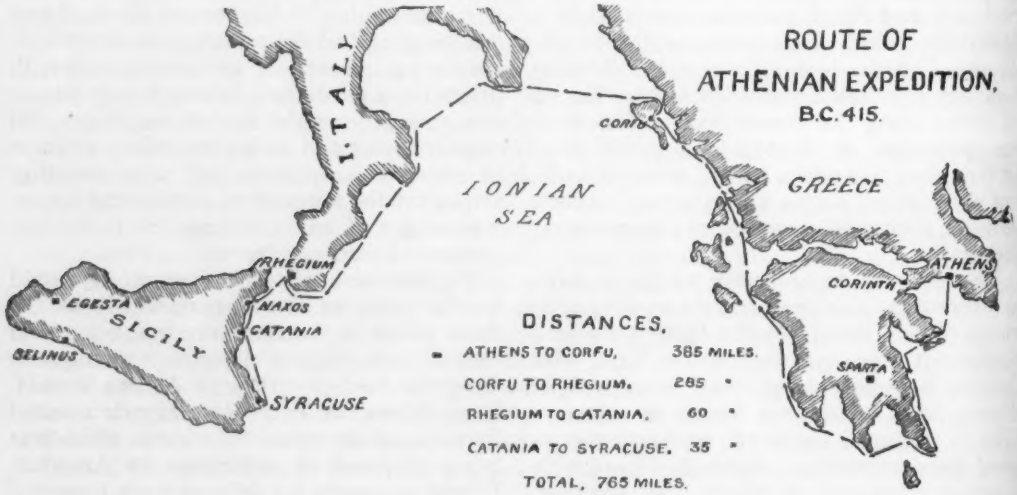
Accompanying the oar galleys there were about forty rowing vessels which acted as transports and supply ships. The "train" proper, however, consisted of "round ships," or sailing vessels, loaded with grain and heavy supplies for the expedition. These vessels were unable to proceed in company with the galleys, being entirely dependent on the wind. Probably the forty merchant galleys were used to make trips between them and the war fleet, bringing up the supplies needed for immediate consumption. As far as possible, it was intended to subsist the expedition while enroute with food purchased at the various cities along the way, but, so great was the size of this force, that few localities could stand this strain on their available food supplies, even assuming their willingness to do so. The magnitude of the transportation problem of this expedition is impressive. Yet the Athenian soldier carried all his arms and ammunition on his person, his food was the simplest, and the army required but little special equipment. If we contrast this with present day conditions, where, to a great extent, machines fight against machines and men are relegated to the secondary position of machine operators, we may visualize somewhat the stupendous transportation requirements of an expedition of similar importance in our own times.

Preparations of such importance could not be made in secret, particularly as the cities allied to Athens were called upon to furnish men, ships and supplies to augment the great fleet prepared by Athens herself. Thus, it was not long before reports reached Syracuse of the powerful armada which was being prepared to encompass its downfall. Proper measures for defense were, however,

inhibited by political factionalism. The wealthy and aristocratic classes were at once impressed by the seriousness of the menace, and demanded that preparations to resist it be vigorously prosecuted. In addition to recruiting and equipping the armed forces to the maximum, strengthening the city's walls and obtaining all possible assistance from allies, it was proposed to fit out and dispatch a small fleet of galleys to meet the enemy en route, to hamper his movements, prey upon his communications and seize favorable opportunities to attack any scattered forces. Such a force, if well handled, might have been most useful in delaying and weakening the expedition. Its appearance would have forced the Athenian galleys to keep close contact with their sailing ships, and to provide strong escorts for them as well as for the supply vessels which plied between them and the war fleet. If handled circumspectly, it is doubtful if it could have been compelled to accept action with a superior force, since, with rowing vessels, a retreating enemy could be closed only by exertion so great as to unfit the crews of the attackers for serious fighting. The operation would therefore have the same advantages from the viewpoint of the Syracusans as, under present day conditions, the delaying attack of a fast force against a heavily guarded but cumbersome expeditionary force. However, the project was not approved. The opposing political party scouted the idea that Athens was really preparing to attack their rich and populous city. The whole thing was a scare, they said, dictated by timidity or self-interest. The Athenians were not coming, or if they did come "a million men would spring to arms overnight"—or words to that effect. Thus, though generals were appointed to consider the problem of defense, little was actually done in Syracuse to prepare for the coming storm.

Meanwhile, the preparations of the Athenians had been made on a generous and even lavish scale, and in due time the expedition, equipped to the last degree of completeness, stood out of the harbor amid the blowing of trumpets and the cheers of the citizens. The fleet coasted around the south of the Grecian peninsula to Corfu, where stores and reënforcements from the allied cities had been assembled. Progress was by easy stages, but was not without difficulty, as most of the cities passed were hostile and refused supplies or even water to the expedition. When fully assembled the fleet numbered 136 fighting vessels, carrying over seven thousand heavily-armed soldiers and accompanied and served by probably in the neighborhood of three hundred merchant ships. The total number of men carried with this expedition is estimated at 36,000.

From Corfu the fleet sailed across the eighty miles of open water separating it from the heel of Italy, and coasted along the southern shore of that peninsula. Efforts were made with little success to enlist the aid, or at least the benevolent neutrality, of the Italian cities passed. After a voyage of about three months, since leaving Athens, the friendly city of Rhegium on the Straits of Messina was reached, and the three com-



manders met to estimate the situation and evolve plans for future action.

Nicias, with his usual caution, recommended that a demonstration be made against Selinus, that the cities of Sicily should be duly impressed with the power of the Athenian state by this display of force, and that the expedition then return to Athens.

Lamachus considered such a limited effort entirely unworthy of the great armament which had been assembled. He pointed out that the Syracusans were unprepared, and that they would probably be thrown into confusion and dismay at the sudden appearance of this vast armada. He believed that a prompt and determined attack in full force would quickly produce a complete victory, and that the fleet might then return laden with honor and booty.

Alcibiades was by nature more of a politician than a fighter. Gifted with unusual persuasive eloquence, he advocated that the Sicilian cities should be systematically canvassed for support and further reënforcements, and the fleet should finally appear before the walls of Syracuse in such overwhelming strength, and with that city so isolated from the possibility of outside assistance, that the futility of any resistance would at once be apparent to her citizens.

This plan was the one finally decided on. Detachments were sent along the coasts of Sicily, but the response of the Sicilian cities was lukewarm. Even Egesta, which was relied upon to furnish considerable assistance, as the war had been undertaken in response to her solicitations, was found to be incapable of contributing appreciably to the expedition in any way. A detachment of ten triremes was sent into the very harbor of Syracuse, where a declaration of war was delivered with appropriate pomp and ceremony. It appears probable that, had the whole fleet participated in this movement, the war might have been speedily finished. Events were to prove, as has been demonstrated by every overseas expedition up to and including the Dardanelles Campaign, that one of the greatest elements of power in such an effort is its ability to deliver a sudden, smashing blow, and that, where this advantage is lost or thrown away, the success of future operations is at once jeopardized.

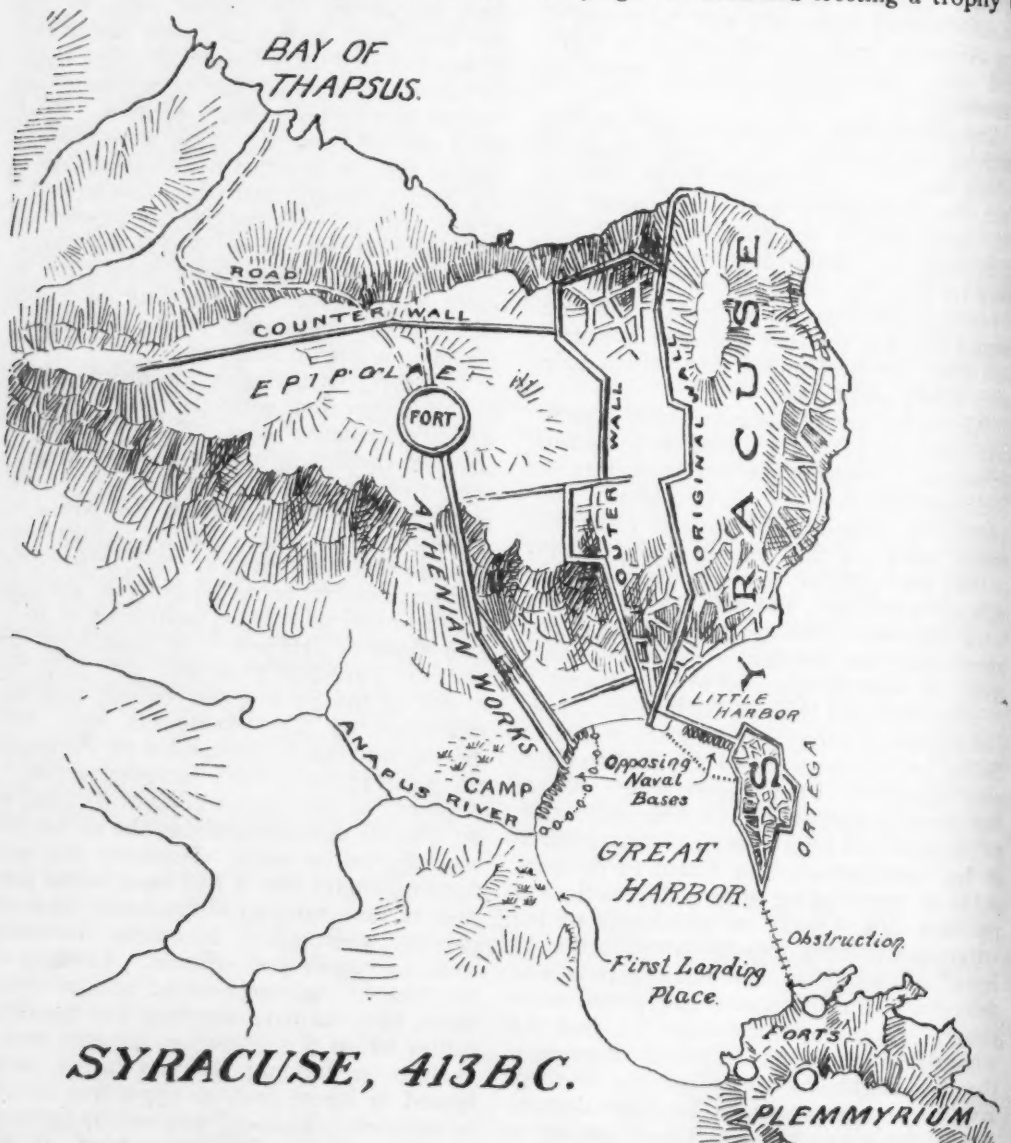
Meanwhile, the main fleet had proceeded on to Catania, a city about thirty miles north of Syracuse, which, by a stratagem, was occupied as an advanced base. The possession of a point so conveniently located permitted the Athenians to threaten their enemies both by land and sea. The troops were landed for rest and refreshment, but no important operations were organized. About this time Alcibiades was called home to face charges which had been framed up against him by his political enemies. Realizing that at home the cards were stacked against him, he deserted with his flagship to the Peloponnesians, and though he later did great harm to his native city, he appears no further in this campaign. Nicias and Lamachus meanwhile squandered their time in petty operations around the coast of Sicily, taking some unimportant towns, but accomplishing nothing of real value.

The Syracusans were meanwhile thoroughly impressed with the grave danger which confronted them. Troops were assembled, fortifications were greatly strengthened and the aid of allies eagerly sought. Such was the reputation of the Athenian seamen in those days, that no thought appears to have been given at this time to naval preparations, it being considered entirely impracticable to contest with them in their own element. However, as time went by and the expected blow did not fall, the spirits of the Syracusans revived, and detachments of their horsemen were frequently sent out to reconnoiter the Athenian camp and to cut up their foraging parties.

When, at last, the Athenians decided to act directly against Syracuse, the movement was effected by water. Doubtless this was due to the fact that it had been found possible to raise only an insignificant force of cavalry, whereas the Syracusan horsemen were numerous and efficient. Landing in the face of resistance could not, in those times, have involved anything like the difficulties which this operation presents under modern conditions; yet no pains were spared to insure that no opposition should be encountered. Word was sent by pretended spies to the Syracusans that, if the Athenian camp were attacked on a certain day, an easy victory was to be expected. They accordingly set forth in force on this enterprise. Meanwhile however, the Athenian army had been embarked, and, in the absence of all of the mobile forces of the defenders, their fleet stood into the Great Harbor of Syracuse. Landing was made with-

out opposition on the west shore of the harbor opposite to the city, and a naturally strong position was seized and fortified. Thus, when the disappointed Syracusans returned from their abortive expedition, they found their enemies securely settled only a mile from the city wall. The following day they attacked this position in force, but were repulsed by the well-trained Athenian infantry. Lack of horsemen, however, prevented the Athenians from closely pursuing their disorganized enemies.

We should expect the Athenians to follow up this entirely successful operation by moving up and investing the city. However, they did nothing of the kind. After burying their dead and erecting a trophy to commemorate their success, they reëmbarked and sailed back to Catania, and subsequently to Naxos, where they went into winter quarters. Thus the result of a well-planned and highly successful operation was precisely nothing—less than nothing in fact, for the Syracusans, though defeated in bat-



tle, felt that they had, at least temporarily, thrown back the invaders. Moreover, being essentially not a military people, they were able to profit considerably from the experience gained in battle. Their organization was materially improved, the fifteen generals who had formerly commanded their forces were reduced to three, and they looked forward to the recommencement of the conflict in the spring with renewed confidence. They also greatly strengthened the defenses of the city, building a new wall across the peninsula on which it stood, and erecting outworks covering the principal land and sea approaches.

With the coming of spring, the Athenians renewed their offensive. This time they landed in a small harbor in the Bay of Thapsus, a few miles north of Syracuse, and marched rapidly on the city. The small force defending the high ground called the Epipolæ, which lies just to the westward of the city, was driven back and, before the main force of the enemy could be brought against the invaders, they had securely occupied these heights. Thus the actual investment of the city was commenced about two years after the Athenian counsel had decided to prosecute this campaign.

Space does not permit a detailed account of the siege operations that followed. Some determined fighting took place; walls and counter walls were built with greatest energy by both parties. The Athenians made good progress, but their operations at first were rendered somewhat laborious by reason of the fact that their supplies and building materials had to be brought up overland a considerable distance from their advanced base at Thapsus. Accordingly, as soon as their works had advanced far enough to provide security the Athenian fleet was moved around to the Great Harbor, where a new base was established near the mouth of the Anapus River. In executing this change of base a land battle was brought about, in which Lamachus was killed, leaving Nicias in sole command. Though the Syracusans had met with considerable success in this engagement, the situation from their viewpoint was commencing to look very unfavorable. The enemy was firmly entrenched in front of their gates, his fortifications every day increasing. Allies from the Sicilian cities were joining his cause, food and supplies were plentiful in his camp. Syracuse, on the contrary, was completely cut off by sea and almost entirely invested by land. Food was limited, and water was somewhat difficult to obtain. Preliminary negotiations leading to the capitulation of the city were therefore opened with Nicias.

However, unknown to the Syracusans, help was, in fact, at hand. Upon learning that Athens had committed herself to this operation, Sparta had seized the opportunity to reopen hostilities with her.

The first move had been to dispatch an experienced general, Gylippus by name, to take charge of the defense of the hard-pressed city. With but four galleys hastily secured from Corinth, he hurried to the south coast of Italy. There he received such pessimistic reports of the state of affairs at Syracuse that, for a while, he abandoned all hope of saving her and bent his efforts on strengthening the position of the friendly Greek cities in Italy. He then sailed around by the north coast of Sicily, picking up small forces from the cities in that locality. Meanwhile a single galley, dispatched directly from Corinth, was permitted by the laxness of the Athenian blockade to enter Syracuse with news of his coming, barely in time to break up the negotiations for the surrender of the city.

Gylippus with less than three thousand men, proceeded overland by forced marches and, before the Athenians were aware of his coming, appeared on the heights of the Epipolæ and effected a junction with the Syracusan garrison. Though he brought little actual force, his arrival greatly strengthened the defenders, for, like Liman von Sanders at Gallipoli, he brought to them efficient leadership and renewed confidence. Issuing a message of defiance to the enemy, he at once assumed the offensive on every opportunity. Several minor successes were achieved, including the capture of an Athenian trireme, the first note of any naval activity on the part of the Syracusans.

The cautious Nicias appears to have been greatly impressed by this show of activity. He withdrew his base to a strongly fortified position on the Plemmyrium, the headland across the Great Harbor from the city, and abandoned any further attempt at a complete investment. A detachment of twenty vessels was sent out to intercept further reënforcements, which it was known the enemy was expecting from Corinth. These, however, succeeded in eluding the force dispatched against them, and entered the har-

bor, bringing much-needed supplies and fighting men. Moreover, they served as a nucleus around which the Syracusan Navy was rapidly built up.

It is difficult to excuse Nicias for permitting his enemies to use the sea as freely as they appear to have done. His naval force was of preponderant strength and, if properly disposed, might at least have brought these enemy reënforcements to action. Possibly also, a more active sea policy might have prevented the arrival of Gylippus. Nicias, however, appears to have had his attention entirely focused on the cose-at-hand details of the land campaign, a near-sighted viewpoint which is not unusual in amphibious operations. Now, having failed properly to utilize his command of the sea, he had placed his enemies in a position where they might seriously challenge it.

This was not such an ambitious project as at first sight might appear. Though Athens at the outset of this war possessed a navy of outstanding strength and efficiency, the ships of Nicias were becoming water-logged and leaky, due to the prolonged service they had given with little opportunity for caulking and overhaul. The crews, originally the pick of a nation of seafarers, had been reduced in numbers and efficiency by being drafted into the shore forces and replaced, to a considerable extent, by slaves and mercenaries of inferior physique and training. Thus, though the Syracusans were admittedly unfamiliar with naval tactics, and their ships no match for those of the Athenians in speed or maneuvering power, Gylippus soon considered the time ripe to send them out against the enemy. Though himself a soldier, he had the breadth of vision to realize that no threat so seriously menaces any overseas expedition as a thrust against its sea communications.

In employing his sea forces, however, Gylippus was severly hampered by a most regrettable initial disposition. Twenty-five of his galleys lay in the Great Harbor, while the remainder of his vessels, numbering twenty, were beached in the cove to the northward of the peninsula of Ortega. To cover the junction of these forces he marched at night with his army, and at dawn attacked the Athenian position on the Plemmyrium. The Athenians, however, appear to have been warned of his intentions, for, notwithstanding this diversion, they launched sixty vessels in time to interpose between the enemy detachments. On land Gylippus scored a brilliant success, driving back the Athenians and destroying vast quantities of their stores. In the sea battle, however, the Syracusans were not so fortunate. Their northern detachment was met in open water by the Athenians and severely handled. Eleven ships were sunk and others seriously damaged. They succeeded, however, in forcing a junction with the southern detachment, and the somewhat battered survivors were beached under the walls of the town in a well protected position. Though the Athenians had lost but three vessels in this battle, their naval situation was considerably impaired, as they were now faced by a "fleet in being" of sufficient strength to constitute a serious threat.

Both sides now clearly recognized the decisive importance of the naval aspect of this campaign. Without the control of the sea Syracuse could hardly hope to hold out for long in the face of an enemy constantly reënforced from his home country, while she herself was isolated from all assistance. To the Athenians, the control of the sea was essential—if it were but seriously impaired, their operations would lose their vigor; while, should it be lost, the entire expedition would be in great danger. The Syracusans therefore lost no time in strengthening the defenses of their restricted naval base. Rows of piles were driven about their fleet, some sawed off below the water and capable of sinking the lightly-built galleys of the enemy should they be run against them. Catapults of unusual size and power were erected on shore to cover these defenses. An effort was made to destroy the enemy fleet with a fire ship, the earliest in recorded naval annals, but the Athenians succeeded in extinguishing it before any damage had been done.

Across the bay, in the Athenian base, preparations for the attack were pressed with equal vigor. The largest of their round ships, a vessel of about a thousand tons displacement, was equipped with wooden towers and protected by leather screens. Bringing her alongside the obstruction, in spite of the heavy fire directed against them, the Athenians succeeded in making fast lines to the piles and heaving up a considerable number with winches. Other piles were sawed off well below the water by divers. The defenders, however, were able to replace the obstructions almost as rapidly as they were removed.

Meanwhile, their shattered hulks were being repaired and strengthened, with a view to renewing the offensive when opportunity offered. The Syracusans realized that their ships were no match for the Athenian galleys in speed or handiness, and that their captains lacked the skill at maneuvering which their opponents possessed. Therefore they strengthened the bows of their vessels with heavy timbers, thereby further reducing their tactical qualities. They were resolved that, on their next meeting, they would give their opponents no opportunity for displaying their superior skill, but would charge them bow to bow, trusting on the increased weight and strength of their vessels to shatter the beaks of their adversaries.

The expected engagement was not long in coming. The opposing fleets met between their respective bases, and, though the battle was indecisive, the advantage rested with the Syracusans. A favorite maneuver of the Athenians had been to cut through the line of their enemy, rounding-to sharply on passing, and attacking again from abaft the beam. They had come to consider it an inexcusable piece of bad handling if a ship were allowed to strike her adversary on her bow. Therefore, when their enemies deliberately adopted these tactics, they were at first unable to adjust their minds to this form of fighting. History is replete with examples of engagements, both on land and sea, where a force has been thrown into confusion by an unexpected form of attack, and we are warned by such instances not to put too much reliance on our preconceived conception of what a naval battle will be like. Perhaps our enemy may have an utterly different conception, and, if he possesses as well the tactical initiative, the result is likely to be bad for us. In the present instance the Athenians lost seven vessels and were forced to withdraw to their own side of the harbor. By this well conceived tactical surprise the Syracusans had inflicted on them the first defeat which an Athenian fleet had ever suffered at the hands of a numerically inferior force.

On shore as well, things were at this time going badly for the Athenians. The camp to which they had removed was situated on low land, and sickness grew prevalent in their forces. The destruction of large quantities of their stores during the last land engagement had faced them with the prospect of serious logistic difficulties. But on the day following their unsuccessful naval action their depression was turned to elation by the arrival of a second magnificent fleet of seventy-three galleys, with 5,000 heavily-armed soldiers, which had been sent forth from Athens to assist them.

That Athens should be capable of this renewed effort, only slightly inferior in magnitude to the first expedition, is indeed to be marveled at. She was at that time assailed by Sparta, which had seized the opportunity to renew hostilities, ravaging her outlying country and establishing a fortified position not far from the city of Athens itself, from which her land communications were almost completely dominated. Notwithstanding these facts, with highly commendable persistency, the Athenians had succeeded in collecting, equipping and dispatching this powerful force.

Its commander, an able general named Demosthenes (not the famous orator by the same name), was anxious to take advantage of the consternation caused to his enemies by the arrival of this new host; and proposed to make an immediate and general attack both by land and sea. Nicias, sick and dispirited, at first opposed this suggestion, but finally consented to an assault by land. Demosthenes led the troops to a night attack, which at first carried all before it. The attackers, however, became disorganized in the darkness, and the Syracusan reserves, advancing on them in solid masses, threw them into confusion, and finally routed them with heavy slaughter. The Athenians were driven back to their camp, new reënforcements joined their enemies, and soon it became apparent that the problem confronting the invaders was to extricate successfully their fever-striken forces from the grip of their exultant foes.

Nicias, though unwilling to attack, was still reluctant to withdraw. It sometimes takes more courage to admit defeat than to cling doggedly to a hopeless situation. Thus Ian Hamilton under somewhat similar circumstances pronounced the proposed evacuation of the Dardanelles to be "unthinkable." An interval of inaction thus followed during which the Athenian forces grew daily weaker and more dispirited, while the enemy constantly gathered strength. Finally, Nicias consented to a withdrawal, and, over a month after the disastrous night attack of Demosthenes, all arrangements were made

to take advantage of the full moon to embark the troops and retire.

The command of the sea still rested with the Athenians, and there appears no reason to doubt that the force might at this time have been withdrawn with little loss, other than the abandonment or destruction of their siege material and heavy stores. However, on the night set for the embarkation, a total eclipse of the moon took place. Not only did this impede the smooth functioning of the plans, but it filled the superstitious soldiers with consternation. To them it appeared as a terrific portent that the heavens themselves were conspiring against the expedition. Nicias seems to have been particularly impressed by this phenomenon. The plans for the embarkation were immediately canceled, sooth-sayers were consulted, and it was decided to wait till the next full moon before renewing the attempt to bring off the expedition.

Meanwhile, on the opposite side of the harbor, the Syracusans were filled with elation. It was apparent that the tremendous expedition which had but recently so gravely threatened their very existence was now reduced to impotence. Their preparations for a general offensive went forward with renewed energy, and they were resolved to exact the last degree of punishment from their would-be conquerors.

Though their fleet was still unprepared for a decisive sea engagement, their small boats kept a close watch on their enemy's position, lying just out of range of their arrows and javelins, and shouting taunts and insults at their dispirited and inactive adversaries. In an attempt to drive off these pests, a sharp, though unimportant, minor naval action was brought on, in which the advantage rested with the Syracusans. As a result, their morale was raised to a still higher level of enthusiasm, while the gloom of the Athenians was deepened.

Bad as was the position of the invaders at this time, it was soon to be rendered almost hopeless. The Syracusans now commenced to block the entrance of the harbor, and the Athenians made no effort to prevent the successful completion of this work. Cut off completely by land and sea, Nicias was now driven to stake all on a decisive fleet action. One hundred and ten vessels were prepared for this last desperate effort. Their decks were crowded with the best of the heavy-armed infantry, with slingers and bowmen; and the rest of the army was drawn up on shore to witness the impending battle.

Orders were given to advance in close formation, bearing down all opposition by the weight of the attack, grappling all enemy vessels encountered, and relying on the excess complement of soldiers carried to board and capture them.

However, the Syracusans had changed their tactics. They no longer charged impetuously, but, taking an open formation beyond the range of the Athenian javelins, they set up a heavy and effective fire of stones hurled from the catapults with which their ships had been fitted, while their enemies were unable to make an effective reply. Having by this means impaired the fighting strength of their enemy, they sent among his fleet a number of small boats which, passing along the towering sides of the Athenian galleys, discharged darts through their port holes against the oarsmen, and snapped off or fouled their oars, so that the stroke was lost, the ships sheered wildly against each other and the fleet was thrown into confusion. Only then did the Syracusan galleys close for the final attack, ramming and sinking their huddled opponents, till the defeat became a rout and only a few battered vessels struggled back to beach themselves before the camp of their horrified compatriots ashore.

The similarity of this action to a modern naval battle is striking—first a long range attack scoring heavy initial damage, then a charge of light forces by which the enemy is thrown into confusion, and finally a determined "clean up" attack to reap to full measure the fruits of victory.

The result of this naval battle was decisive. Cut off from succor by sea, there remained to the Athenians but the faint hope that they might break through the shore forces of the enemy, and make their way into the interior. This they might have done had they moved promptly, as the Syracusans at once engaged in a wild orgy of feasting in celebration of their victory, and Gylippus, though recognizing the greatness of his opportunity, was unable at the moment to post forces to cover the fords and passes by which the enemy must withdraw. However, the morale of the Athenians was completely shattered and they also were, for the moment, incapable of movement. When on the next day the Athenian forces marched

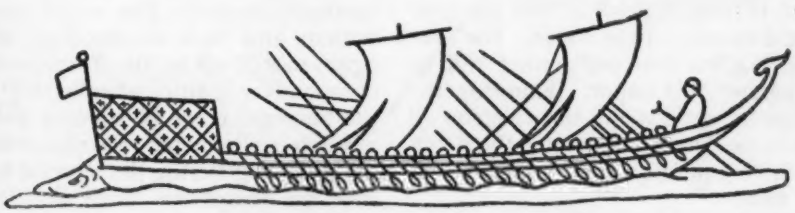
out on their desperate attempt, still 40,000 strong after leaving behind their sick and wounded comrades, the passes were already held by their enemies. They made some progress, however, and for eight days fought on bravely though hopelessly. At last, driven into a position from which there was no escape and attacked on all sides by greatly superior forces, the survivors, now reduced to about 7,000 in number, surrendered unconditionally.

Of the two mighty fleets which had so proudly sailed from Athens not a vessel returned. So complete was the annihilation of the invaders, that it was months before Athens learned of the fate of her expedition, and then her citizens were at first unable to credit it. The flower of her manhood had passed away, or were prisoners in the Sicilian quarries. Her navy, for years the ruler of the seas, had sunk almost into utter oblivion. Her treasuries had been drained to fit out and support this mighty expedition. She was still confronted at home with the forces of Sparta, which were securely established in a fortified position almost at her very doors. Under these circumstances, it is greatly to the credit of the Hellenic character that her government did not at once disintegrate. Instead, fresh forces were raised, a new fleet took the sea within a year, and by desperate efforts the war at home was actively prosecuted. But her efforts to recover from this great catastrophe, though valiant, were not destined to be successful. Ten years later, at Ægospotamos, the Athenian fleet of 180 vessels was utterly destroyed by Sparta. Thereafter her navy was restricted by treaty to a paltry dozen vessels, and Athenian influence was no longer effective in determining the course of human progress.

The story of the annihilation of this mighty expedition is so replete with lessons applicable to modern conditions that it is difficult to sum up in a few words the conclusions to be drawn from a consideration of the events leading up to this great disaster. Modern conditions of warfare have greatly increased the advantage of the defenders in an overseas campaign. The Athenian expedition was prepared and equipped on a lavish scale and supported by generous reënforcements, yet it suffered a fearful defeat. Equally complete but swifter in its arrival, it is likely to be the defeat of a similar expedition in modern times, unless it be fitted out with greatest care and completeness, and move in crushing strength. Should we ever embark upon such an enterprise, those in authority must resist to the utmost, even to the sacrificing of their personal reputations, the popular demand for premature movement which will be directed against them—as it has been in all similar crises in our history.

But, having once embarked upon such an enterprise, its leaders must use the force entrusted to their command with greatest energy and determination. They must be prepared to accept the heavy losses likely to be encountered, and must strike hard, and strike again; employing every energy and resource with a vigor almost approaching recklessness, to bear down the enemy before he can bring his full strength into action.

If, on the contrary, such an effort be launched against us, we must not be dismayed by the apparent strength of our adversary, even though the situation may appear desperate. We must recall that, in such a situation, even a small force, if efficiently led, is capable of greatly delaying the enemy and embarrassing his operations, and that if we can but gain the time necessary to transmute our immense potential resources into usable military assets, we may look forward with confidence to a final victory as complete and decisive as that gained by the Syracusans.



GREEK WAR GALLEY WITH TWO MASTS

Acoustical Methods *of* Depth Finding

By LIEUTENANT HARRY H. HILL, *U. S. Navy*

ANY method which shows possibilities of giving the captain and navigator soundings quickly and accurately is worth developing and using. In this paper an attempt is made to discuss some of the methods used for determining the depth of water by sound.

There are several distinct ways of using sound to obtain depths of water from a ship, namely:

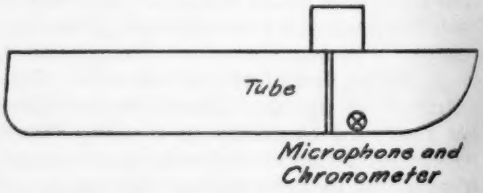
1. Stop-watch method.
2. Angle of reflection method.
3. Hayes sonic depth finder.
4. The fathometer.

These methods will be taken up in this order.

Each of these methods, except the angle of reflection method, makes use of the fact that distance equals velocity times time. In the stop-watch method the only apparatus required is a stop-watch, a microphone or some other means for detecting sound in water, and a sound source. Let a sound impulse be made at the surface of the water. The sound will travel to the bottom and part of it will be reflected back to the surface where it is picked up by the microphone. The stop-watch is started when the impulse is made at the surface and is stopped when the echo from the bottom is picked up by the microphone. Thus, the time interval between initial impulse at the surface and the receipt of the echo by the microphone is determined. The velocity of sound in water is well known. It is about 4,800 feet per second, varying somewhat with the temperature and density of the water. For sake of simplicity 4,800 feet per second will be used throughout this paper. Knowing the elapsed time in seconds and the velocity, all that needs to be done to determine the depth of water is to multiply them together and divide by two.

This method is limited to some extent by the accuracy of the stop-watch, but to a much greater extent by the personal error entering into the starting and stopping of the watch. The average person stopping an ordinary stop-watch when he hears an echo from the bottom has an error of about one-fifth of a second. Suppose the depth is 2,400 feet or 400 fathoms. This error of one-fifth of a second in time would introduce an error of 480 feet or 80 fathoms in depth. This is an error of twenty per cent. No account has been taken of any existing error in starting the stop-watch when the initial impulse is made. Obviously this method without refinements is practically useless for accurate work but might be satisfactory for estimates, etc.

A German invention uses the stop-watch method in a manner slightly different from that described above. It makes use of a tube which runs down through the bottom of the ship from the pilot house, and a special microphone and chronometer arrangement. A pistol which expels an explosion cartridge is fired down the tube. The cartridge explodes when it strikes the water and makes a sound of good intensity. When the sound is made, it is picked up by the microphone and the chronometer is automatically started. The sound travels to the bottom and back to the ship where it is again picked up by the microphone and the chronometer is automatically stopped. Thus, the personal error in starting and stopping a watch is eliminated; the chronometer automatically registering the interval between the time the sound was made and the time of arrival of the echo at the ship. Knowing the velocity of sound in water and the time

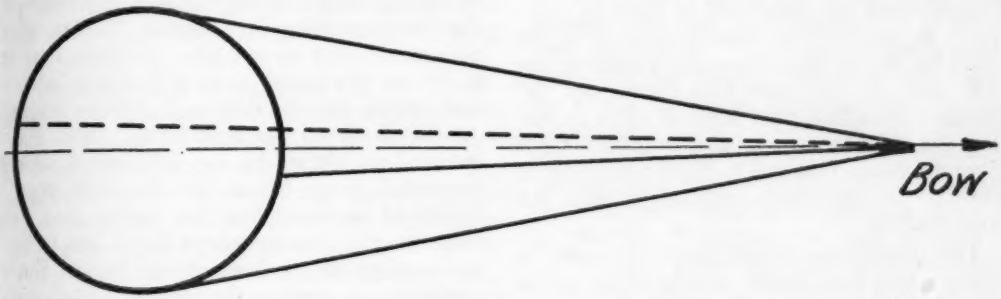


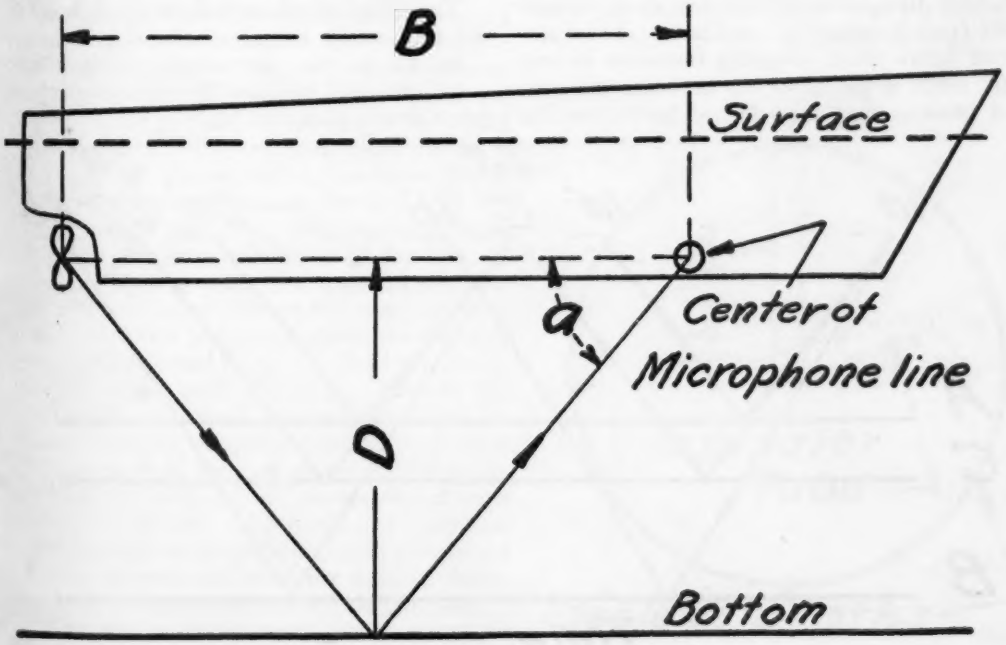
interval the depth is determined exactly as it was in the straight stop-watch method. This is much better than the straight stop-watch method, but still it is not very accurate.

With the angle of reflection method, use is made of one of the microphone lines of the electric M.V. compensator or of one side of the acoustic M.V. compensator. The compensator will not be described here, but it should be noted that this device is used to determine the relative angle as measured from the bow that a line drawn from the sound source to the geometric center of the microphone line makes with a line drawn through the microphones. Suppose that the compensator is adjusted so that it is "focused" for sound coming from a direction making a certain angle with the microphone line, and that this angle lies in a plane which is parallel to the surface of the water, as is normally the case when obtaining a bearing of a sound source. The compensator also is in "focus" for sounds coming from any direction so long as that direction makes the same angle with the base line as before. In other words, the compensator can be "focused" for any sound the source of which lies on the surface of a cone.

The propeller sounds from a ship will be reflected from the bottom to the microphone, as shown in larger figure below.

Now if the compensator be focused on this sound from the bottom, the angle from the bow to the direction of this sound from the bottom will be measured. Or what amounts to the same thing, the reciprocal of this angle, "a," is determined. B is the base-line between the propellers, or the sound source,





and the center of the microphone line. It is desired to determine the depth, D. Obviously, Tan a $= \left[\frac{D}{.5B}\right]$ or D=.5B tan a.

A scale marked in fathoms of depth can be put on the compensator or, better, a table of compensator readings and depths in fathoms can be made. Some corrections that may be necessary are: inclination of the compensator line from the horizontal, depths of microphones and propellers below the surface, trim of the ship, shelving of the bottom. The toeing in of the compensator line toward the bow is usually neglected. This method has been and is used in practice. It gives good results up to a depth equal to about three times the length of the base line, B. Beyond this depth tan "a" changes so rapidly that a small error in setting the compensator results in such a large error in depth that the method ceases to be useful. It requires a trained listener for good results.

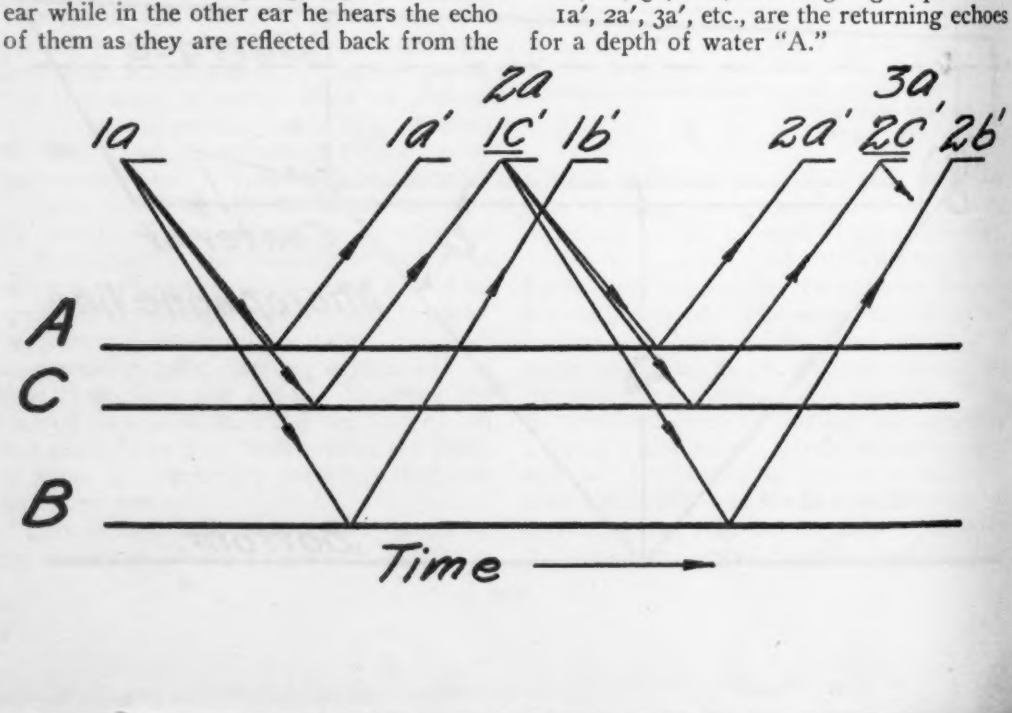
The Hayes sonic depth finder, invented by Dr. Hayes of the sound section of the naval research laboratory, operates according to the law that the distance a sound travels in a uniform medium in a given time equals the product of this time and the velocity of the sound in the medium. It is essentially a device whereby a continuous series of uniformly timed sound impulses may be sent out from a submarine oscillator. The operator hears these outgoing impulses in one ear while in the other ear he hears the echo of them as they are reflected back from the bottom of the sea and picked up by the microphones. He is able to tell when each outgoing impulse exactly coincides with the returning echo of the previous impulse with a precision of about one one-hundredth of a second. The time interval between successive outgoing impulses may be varied continuously over a range of from one-tenth of a second to ten seconds, corresponding to the depths of water from approximately 40 fathoms to 4,000 fathoms.

When taking a sounding the operator adjusts the interval between successive impulses by trial until he observes unison between an outgoing signal and the echo of the previous outgoing signal. When this adjustment has been made, the time that it takes for the sound to travel to the bottom and return may be determined from a scale on the front of the apparatus. This time interval multiplied by the velocity of sound in water gives twice the required depth. It should be noted that this device does not measure the time required for a single impulse to go to the bottom and back. Such methods, as previously stated, under conditions found at sea, are capable of only the stop-watch precision of about one-fifth of a second which corresponds to a large error in depth. The Hayes sonic depth finder has a precision of four or five fathoms or better.

The diagram given below may clear up the elementary theory of this depth finder.

1a, 2a, 3a, etc., are outgoing impulses.

1a′, 2a′, 3a′, etc., are the returning echoes for a depth of water "A."



1b′, 2b′, 3b′, etc., are the returning echoes for a depth of water "B."

1c′, 2c′, 3c′, etc., are the returning echoes for a depth of water "C."

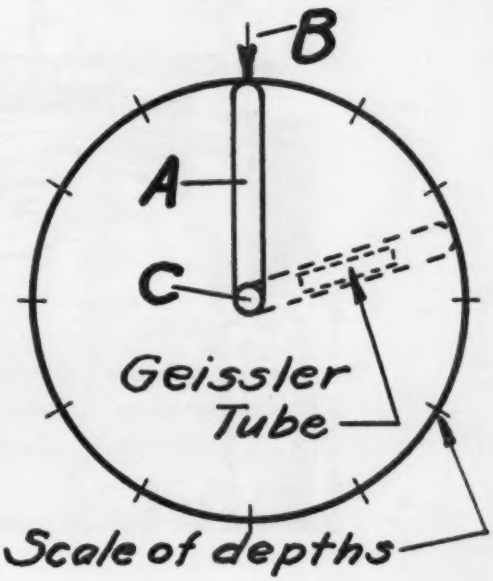
As shown in the figure, if the depth is varied, some depth such as C can be found for which the echo 1c′ will coincide exactly with the second outgoing impulse 2a. As the time between impulses is accurately known it is easy to calculate the depth of water. Of course, in the actual depth finder the time intervals between the outgoing impulses are varied until the beginning, or "head," of the echo of each outgoing impulse is brought into exact coincidence with the "head" of the next following outgoing impulse.

A technical description of this device will not be given, but it might be well to point out some of its features. The sonic depth finder is an accurately built piece of apparatus which is electrically and mechanically rugged. In the Navy type of installation the outgoing impulses are sent out by a skin type oscillator controlled by an automatic key. The speed of a rotary converter is accurately maintained constant at 1,800 revolutions per minute by means of a Leeds and Northrup tuning fork. By this means a horizontal table which is fifteen inches in diameter is driven at a constant speed of six revolutions per minute through a reduction gear. A small vertical wheel one and a half inches in diameter is driven by the horizontal table. This vertical wheel can be moved toward or away from the center of the table so that its speed can be varied continuously. The vertical wheel drives a shaft which rotates two cam-shaped discs. Either of these cams may be used. If the slow cam is used, one outgoing impulse is sent out for each revolution of the cam; if the fast cam is used, ten impulses are sent out for each revolution of the cam. A hand wheel rotates a horizontal shaft which moves the vertical wheel in or out from the center of the table, and, therefore, controls the speed of rotation of the cams and the interval between outgoing impulses. A scale on the front of the instrument indicates the number of outgoing impulses sent out each second. Curves of depths in fathoms against scale readings in impulses per second can be plotted and used for quickly determining the depths from the scale readings.

The Hayes sonic depth finder seems to give excellent results in practice. At present it cannot be used to obtain depths much less than forty fathoms and this is a very serious drawback.

In brief, the fathometer is designed to give the navigator a visual and continuous record of depths which are less than one hundred fathoms. A constant speed motor drives a horizontal shaft, C, in the figure. This shaft rotates an arm A. Each time this arm sweeps past the contact B a sound impulse is sent out into the water. This sound travels to the bottom and is reflected back to the ship where it is picked up by a microphone. It is converted from sound energy into electrical energy and is filtered and amplified. Then it operates a spark coil. By this means a Geissler tube carried on arm A is lighted when the echo from the bottom reaches the ship. The arm A makes four revolutions per second so that there will be four flashes of the tube per second. A scale calibrated in fathoms is provided so that the depth can be read directly off at the point where the tube lights up. Actually the light dances around a mean point at any depth.

For depths greater than one hundred fathoms a clutch is engaged by means of a handle at the side of the fathometer. This slows the speed of rotation of arm A to one revolution in one and one half seconds. One and one half seconds of time corresponds to a depth of six hundred fathoms. A



white light on arm A is lighted when the clutch is engaged. The operator wears ear phones and hears the outgoing impulse made when the arm A passes a fixed contact and also hears the returning echo from the bottom. He merely notes the location of the white light when the echo returns and reads the depth directly from a second scale (zero to six hundred fathoms). By this "White Light" method depths from one hundred to fourteen or fifteen hundred fathoms may be obtained.

The fathometer, as built by the Submarine Signal Company, is now a commercial product. It is limited to some extent by the fact that ships' noises cover a large part of the audible sound spectrum. Some of these ships' noises may be picked up by the fathometer and if they are of sufficient intensity may cause the tube to light up when it should not light and thus give an erroneous reading. The device, unlike the human ear, is unable to distinguish between ships' noises and echoes, so long as the ships' noises are of the proper frequency and intensity. Also, the fathometer has a rather delicate electrical circuit and this has handicapped it. However, with reasonably good personnel it gives good results and has possibilities of filling a great need in navigation.

No mention has been made of other uses of sound in navigation. Ranges of beacons can be obtained by observing radio and sound signals which are sent out simultaneously. The time elapsed between the transmission and the receipt of a radio signal is considered to be zero while the velocity of sound in both air and water is well known. Bearings on sound beacons can be obtained by compensators or other means. The location of icebergs and ships by sound offers a large field and needs further development.

Underwood and Underwood

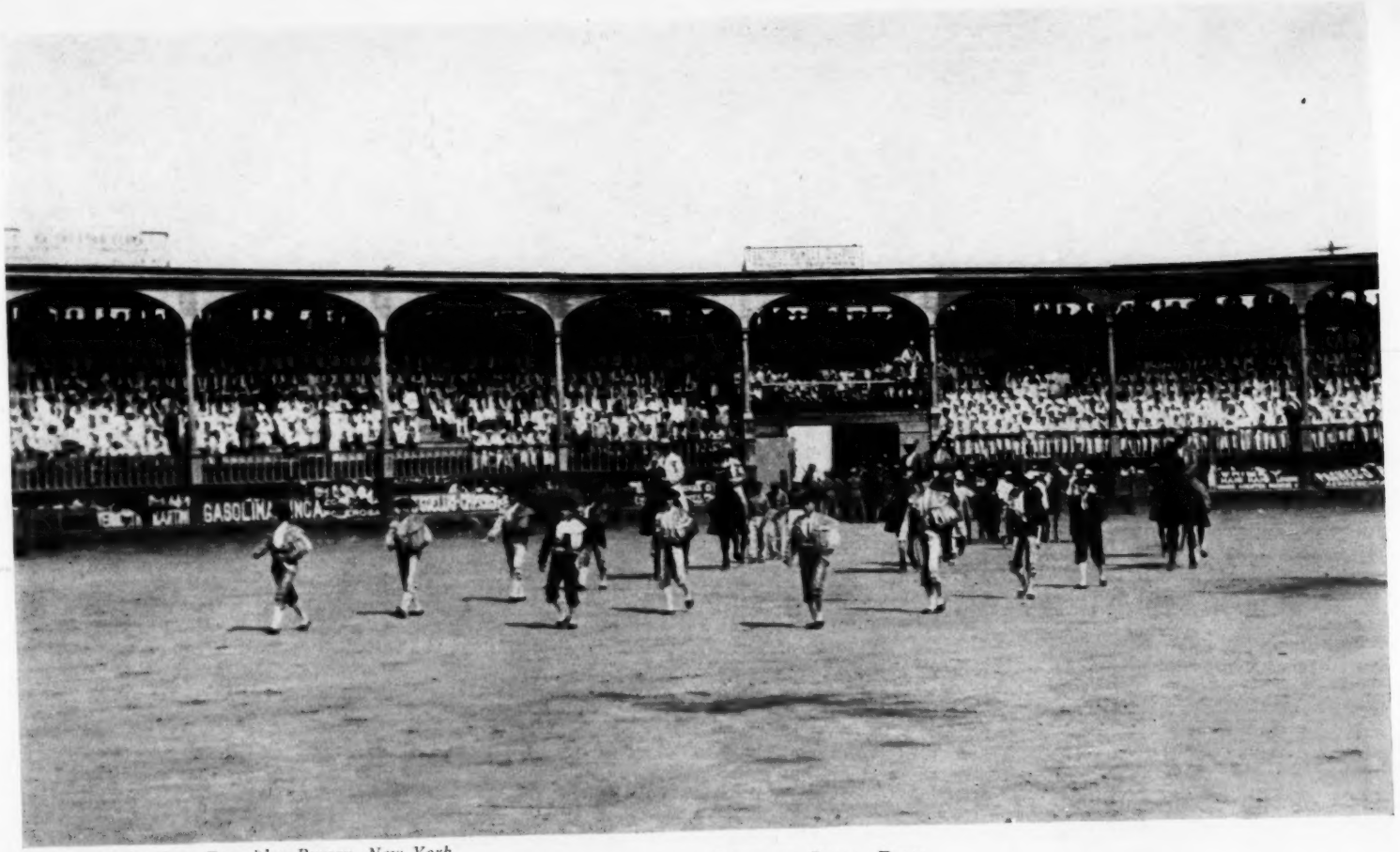
Paseo de Colon, Lima, Peru
One of Lima's beautiful boulevards.

Courtesy of the Navy Recruiting Bureau, New York

PLAZA OF ARMS, LIMA, PERU

Courtesy of the Navy Recruiting Bureau, New York

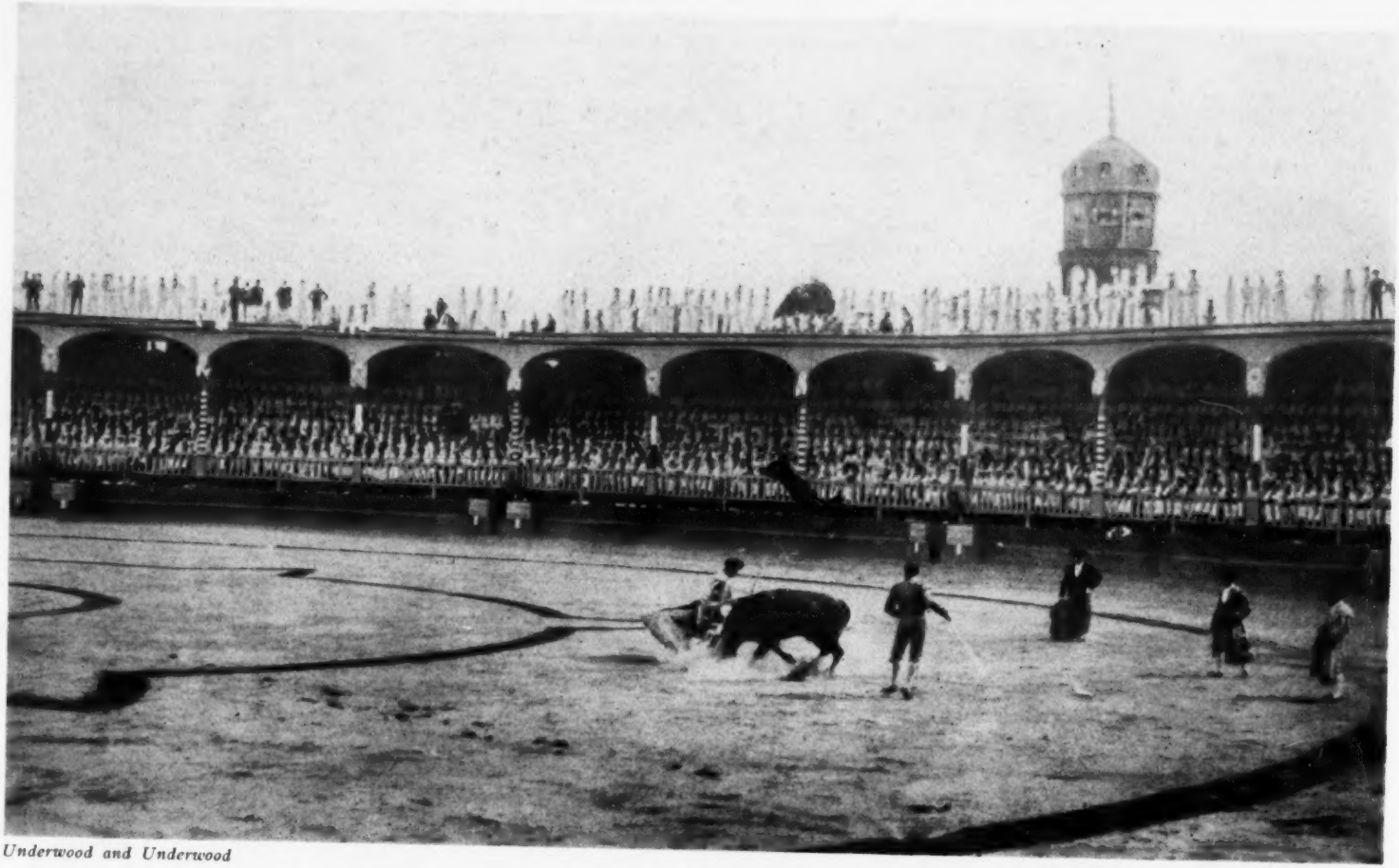
PLAZA OF ARMS, LIMA, PERU



Courtesy of the Navy Recruiting Bureau, New York

PARADE OF THE BULL FIGHTERS, LIMA, PERU

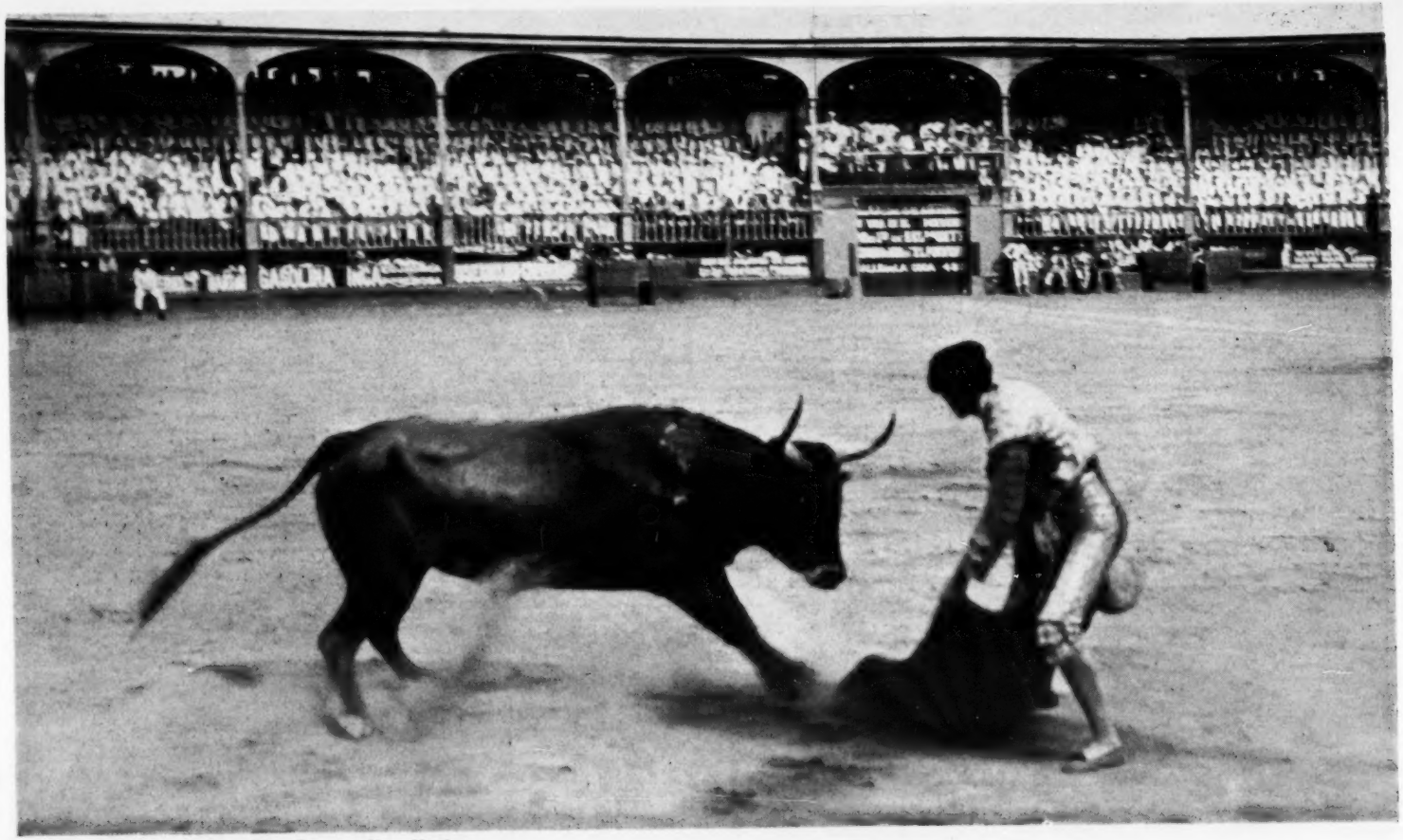
A part of the ceremonies preliminary to the actual bull fighting.



Underwood and Underwood

THE BULL FIGHT, 1908
Note the Bluejackets in and on the roof of the stands.

THE BULL FIGHT, 1908
Note the Bluejackets in and on the roof of the stands.

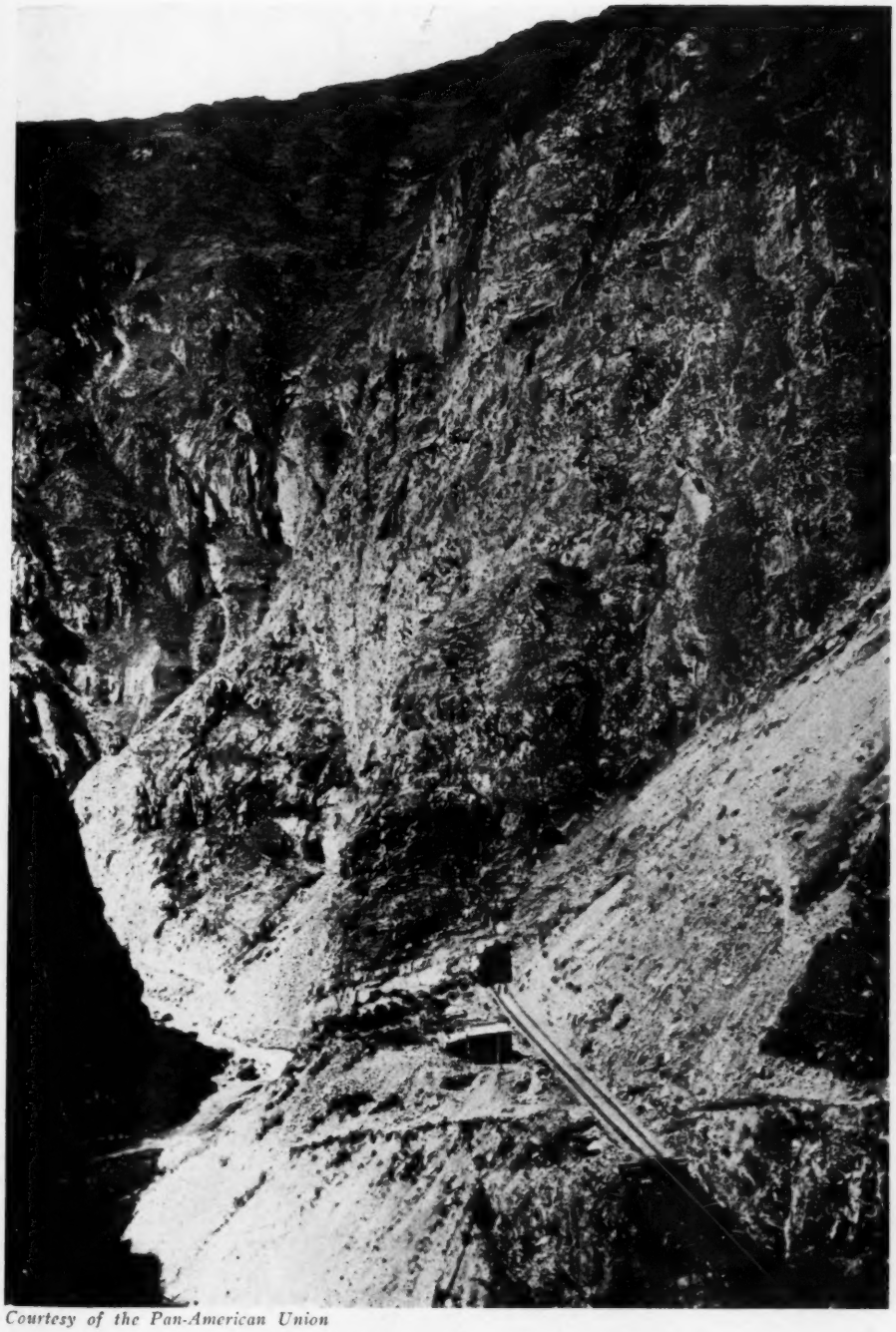


Courtesy of the Navy Recruiting Bureau, New York

SKILL VS. BRAWN, LIMA, PERU
Sometimes disastrous to the matador.

Courtesy of the Pan-American Union

SCENE ON THE OROYA RAILROAD IN PERU



Courtesy of the Pan-American Union

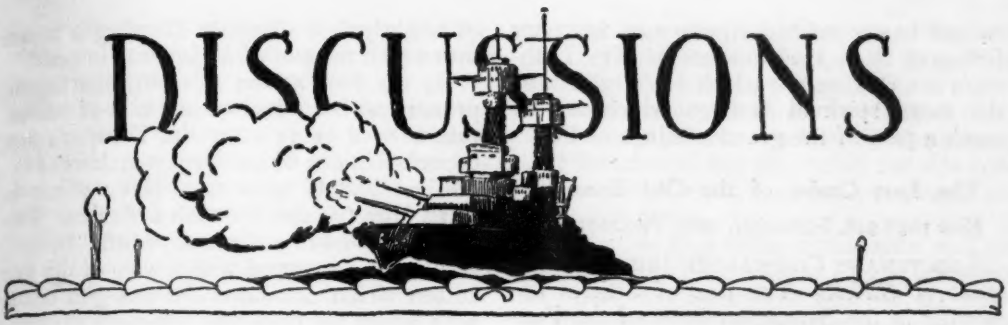
Scene on the Oroya Railroad in Peru

One of the reasons the officers making this trip doubted the truth of the adage "What goes up must come down."

Courtesy of the Pan-American Union

SCENE ON THE OROYA RAILROAD IN PERU

DISCUSSIONS



A Vanishing Naval Tradition —The Figurehead

(See page 1166, November, 1927, PROCEEDINGS)

BROCKHOLST LIVINGSTON.—It seems appropriate to welcome Mrs. Constance Lathrop as a contributor to the pages of the PROCEEDINGS. We have seen members of her sex entering politics, business and the professions. She now appears as the first to "break into print" on the subject of the Navy. Is it not possible that with the growing interest in all affairs which women are taking we may see a finer side of naval affairs developed? Mrs. Lathrop's article is a sample of this. She pleads for the cause of the figurehead which for long was held as an ornament of inspirational and traditional value.

The American Navy has been backward in the use of historic material as an inspiration for its younger advocates. It has been the subject of much writing that we do not make the proper use of the mass of available material to instill a better knowledge, even a deeper appreciation, of our past. Mrs. Lathrop has shown the reverence in which the figurehead was often held by the members of the crew of the ship which it adorned. Navy men are still of the nature that is impressed by such things. The army is developing insignia for all its regiments that will portray the history of the unit. Why should not the Navy, whose units are ships, have similar devices, and what better form could they take than the reëstablishment of the practice of figureheads?

In discussion of a design for destroyer leaders, submitted by Maurice Prendergast, the present writer advised adopting his suggestion of placing the coat-of-arms on the bow of our ships. The clipper-bow has apparently come to stay in our Navy and is being adopted in foreign ships. Could we not then place the figurehead on many of our future ships? Would not the men of a new *Delaware* be inspired if, upon her bow, there was placed the "God of 2.5"? Perhaps the *Delaware* would be too popular with those striving for promotion but then, perhaps, we shall never have another *Delaware* when we consider the fate of the last of her name.

Emblems of the states are possibly the most adaptable to bows. The figurehead from the old *New York* is especially so suited but nearly all the states have coats-of-arms similar to New York's. The states may, in the future, question the suitability of a silver service as compared with the value of a figurehead.

If figureheads were discontinued only because they were of no practical use, let them be replaced with all possible speed. Their value is an invisible asset but a great one, nevertheless. Perhaps there is something in the claim of weight, even of cost, but, if we are to carry the first matter to its extremity, we can rid our ships of much more than they carry at present. The cost is something which, *of course*, would be questioned by certain individuals who repose in Washington, but even they must have some spirit of the past remaining. Surely it would not be very difficult to persuade them of the benefit which would follow upon the reëstablishment of this old-time custom. Mrs. Lathrop concludes her article with the words: "tradition must yield to efficiency in banishing the inspiring and historic figurehead . . . . " May we, then, expect efficiency to rob us entirely of all those customs and usages upon which the spirit of the sea has been built and which are so much a part of the lives of "those who go down to the sea in ships?" Can it be that the spirit of mate-

rialism has so robbed America of her finer feelings? If so, it is to those of Mrs. Lathrop's sex that we must look for a rebirth of the more spiritual feelings which are so much a part of the grander things of life.

The Last Cruise of the Old Trenton

(See page 948, September, 1927, PROCEEDINGS)

LIEUTENANT COMMANDER JOHN H. BARNARD, *U.S.N.R.*—The line of articles appearing in the September issue of the PROCEEDINGS is calculated to bring back to the older readers reminiscences of matters connected with the service hardly to be visualized by those whose entry has been subsequent to the Spanish War.

Note may have been taken of such items in "The Last Cruise of the Old *Trenton*" as those regarding her having been the first ship in the Navy to have been electrically lighted, and the reference to her equipment with the old spar torpedoes, etc.

In the matter of the first of these two I am more than sure that he is quite right and I think that the writer would have been safe in putting her down as one of the very first of sea-going ships so equipped as, in 1883, even the early "isolated" plants ashore were extremely rare and when I saw her before she left the Brooklyn yard that year, I had only seen incandescent lamps on a single North River ferry-boat and on nothing else afloat.

To her, on her first commission, went a very considerable portion of my class, some to be transferred to ships on the Mediterranean station and others on their way to ships on the China station, and I can well imagine the impression upon junior officers of today to have seen the crowded condition of her steerage, all berths filled, every hammock swing utilized, every foot of her transoms occupied and some even sleeping on the mess table from which they had to be routed very early each day.

It is to the old spar torpedo, however, and to the connection of one of my classmates with one of them on the China station that my thoughts run back.

In most details these torpedoes resembled that with which Cushing attacked the *Albemarle*.

They consisted of a hollow cast iron flask maybe three or four feet long, maybe 10 inches or 12 inches in diameter, with a neck of slightly less diameter forming a socket into which the end of a spar was inserted.

By my time at the Academy the electric primer had been devised and it is of interest that several years after the *Trenton's* first commission one of our largest makers of explosives had to turn to a Navy officer to learn how to contrive such a device. This fuse consisted of a diminutive little "bridge" of platinum wrapped with a wisp of dry gun cotton which detonated the wet gun cotton with which the flask was filled.

For ship work, this torpedo was fitted on the end of the lower studding sail boom, or that which was most usually utilized as the boat boom for a ship at anchor.

The circuit consisted of a single insulated wire running from one pole of a salammoniac battery through a watertight gland in the side of the flask to the platinum igniter and thence was "grounded" on the metal of the flask. The other pole of the battery was "grounded" on the copper sheathing of the hull. Included in this circuit was an ordinary telegraph key on the rail of the bridge.

I cannot recall the ship to which Frank Colvin was eventually transferred but it might have been the old *Nipsic*, and, at all events, was one of that class with the bridge aft and her engine room hatch rising through the quarter deck almost directly beneath the bridge. Also, on a bulkhead of this hatch was located the battery for the torpedoes.

Now the Naval Academy was about the first college to have a course in electricity and even at that, Colvin came to it as an amateur electrician and telegraph operator and so antedated, in a way, the "hams" of our later days.

In consequence he was marked from the start as "savvy" in electricity and that reputation he carried to his ships and, accordingly, was put in charge of the salammoniac battery and the above described complicated circuit.

It was not in those days a remarkable happening that the skipper knew more about sailoring than he did about these new-fangled contraptions like electricity and was hardly intent on enlarging his acquisitions in that line; or, at least had not given much thought to so doing. It did, however, come about that this particular sloop-of-war was due for her quarterly inspection and was

lying off the Tientsin Forts when the admiral arrived and inspection was set for the following day.

Further, as firing the spar torpedo was one of the requirements, one was fitted to one of the boat booms and guyed out a few feet from the ship's side. Likewise, Colvin was instructed to wash out the cells of the battery, put in new zincs, etc. Toward doing so, he removed the two outgoing wires and hooked their loose ends together rather than let them go adrift.

While so engaged a civilian friend of the executive officer came on board and, in being shown around, the two of them arrived on the bridge where seeing the torpedo key led to a description of the torpedo and the method of firing it. Then, leaning over the bridge rail, the executive officer called down to Colvin who had all the cells down on the grating to ask if the battery was disconnected. Upon being answered that it was, he added to his friend that simply pressing the key would do the trick and, as he pressed it, the trick was surely accomplished.

The discharge not only jarred the ship very considerably but it jarred the old man more. So much so that he would not be satisfied by proof that the battery was actually out of the circuit, and all apart, but demanded that Colvin explain how such things could happen.

Properly doubting his ability to explain electric couples to an irate skipper, he got another igniter, succeeded in persuading the wardroom mess to lend him a bit of their table silverware, begged a grate bar from the fire room, commandeered a deck bucket which he filled from overside and, so sensitive was that little platinum bridge that he made it glow for the captain and thought his troubles over. But not so. The captain thereby became a full-fledged scientist and, not content with his explanation to the admiral, he went on, without consulting Colvin, to brag that he would demonstrate the needlessness of any old battery.

Accordingly, with a new torpedo on the boom which was guyed out its full length, Colvin was instructed to wire it up with the battery omitted from the circuit.

For quarterly practice the torpedo demonstration was scheduled for the last and, all through the exercises, the captain was bragging and the admiral was worse than skeptical. Finally the time for the captain's triumph was reached, but when he touched the key and nothing happened he got an earful of the admiral's derision.

Even hammering on the key did not obviate the necessity of hooking in the battery and the admiral was piped over the side adding remarks which had not previously occurred to him.

The scene then shifts to the cabin with the captain visiting on Colvin all the admiral's thoughts and comments with Colvin thoroughly convinced he could not impress the captain with the details of internal resistances in batteries. Therefore, when the outburst ended, he intimated that had he been consulted he would have advised against attempting the omission of the battery at the end of the ebb tide.

That ran beyond the skipper's acquaintance with that particular branch of science, so Colvin again provided himself with the former paraphernalia and a fresh bucket of water from the side with which he showed that the igniter would *not* glow.

To this he added the explanation that when the accident had happened it was the end of the flood with the water much more salty than when the experiment was tried for the Admiral.

In conclusion, I cannot say whether all Colvin's connections were so carefully made on his second demonstration to the captain as they were during his first because I don't know.

The Suicide Flotilla

(See page 1002, September, 1927, PROCEEDINGS)

LIEUTENANT COMMANDER H. F. BRECKEL, *U.S.N.R.*—The comment on the author's effort entitled "The Suicide Flotilla" (as published in the June issue of the U. S. NAVAL INSTITUTE PROCEEDINGS) which was submitted under "Discussion" in the September issue by Commander G. W. Kenyon, was observed with interest and the statement of error noted.

Primarily, the article in question was one which dealt only with the activity of the yachts working in French waters, and the text thereof was compiled from notes made by the author while cooperating in the writing of *The Corsair in the War Zone* with the late Ralph D. Paine. This accounts, more than likely, for the alleged error of fact as regards the destroyers which were acting as escort for the convoy in company with

the *Corsair* at the time the great storm of December, 1917, broke in the Bay of Biscay, resulting in severe damage to Allied shipping.

On reading Commander Kenyon's comment the writer carefully checked the available data and secured verified copies of the ships' logs for the dates of December 15, 16 and 17, 1917, for the purpose of counterchecking the previous notes compiled. Perusal of these log sheets clearly substantiates the contention of Commander Kenyon to the effect "that the *Corsair* was obliged to 'turn around'" by reason of the severity of the storm some hours prior to the *Warrington*. The logs of the two ships clearly substantiate this fact, while the notes made by the writer and others contending the opposite erred, either due to lapse of time, or other unintentional reasons.

The writer regrets very much that this unintentional error was made, and, as mentioned, the destroyer phase of activity was not stressed more because the article was one primarily concerning the activity of the armed yachts in anti-submarine work and their accomplishments in this direction in spite of their frailness and other drawbacks as to their suitability as "men o' war."

Certainly the writer wishes to be the last to detract from the wonderful records made by our destroyer forces, transports, and other vessels at sea during the war, for as we know, all worked hard, and the unceasing vigilance and tireless effort displayed by the Navy as a unit in accomplishing the mission of transporting safely overseas our vast war-time army and its equipment, constituted the prime factor in achieving victory for the Allied arms. The credit for the achievement belongs to the Navy as a unit, rather than to the individual vessel or group, even though some were fortunate enough to encounter more activity than others.

The Navy in Hawaii

(See pages XLII and 924, August, 1927, PROCEEDINGS)

J. R. SELFRIDGE.—In reading the August issue of the PROCEEDINGS the following errors were noted:

(a) Page XLII—The crew of the U.S.S. *Philadelphia* and not of the U.S.S. *Boston* hoisted the flag at the time of annexation, August 12, 1898.

(b) Page 924—Article "The American Navy in Hawaii" by Albert Pierce Taylor states, "in the presence of President Dole . . . . and landing forces from the *Philadelphia* and *Mohican*, the Hawaiian flag was lowered, etc." The U.S.S. *Philadelphia* was the only American naval vessel present at those ceremonies. The U.S.S. *Mohican* was not there. I was attached to the former ship in the capacity of assistant engineer with the rank of ensign at the time. The entire ship's company was landed and participated in the annexation ceremonies except the navigator, the late Lieutenant Lansdale, Gunner Jaffe, Surgeon Odell, the writer and hardly more than a half dozen seamen and a small force in the fireroom and auxiliary station. I fired the port three-pounder saluting gun and Dr. Odell the starboard when saluting the hauling down of the Provisional Republic flag and hoisting the U. S. flag.

The Merchant Marine

(See page 1271, December, 1927, PROCEEDINGS)

C. A. D. BURK.—I have read the article by C. E. Grunsky "The Merchant Marine", in the December issue. As the problem is noted in relative costs of U.S. foreign shipping, I suggest that the U. S. importer on through shipments receive a deduction in duty equal to C. I. F. (Cost, Insurance and Freight).

Thus if duty is.....$10,000
and C. I. F. is..... 5,000 Credit

5,000 Cash

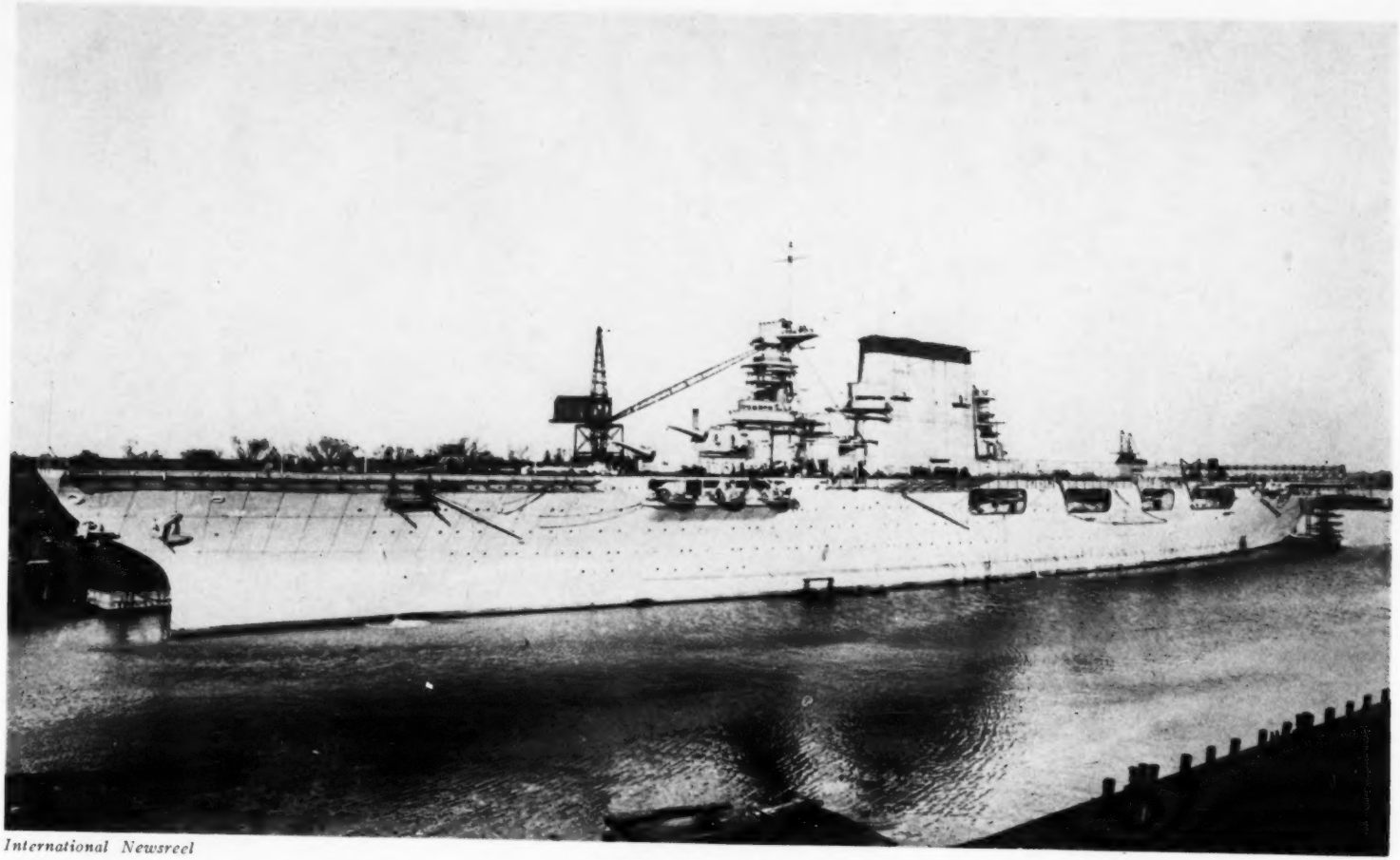
Should this net the government too small a paid duty, simply revise tariff. As there is no hope for subsidy bills in Congress this seems to be the only method to keep U.S. merchantmen in foreign trade.

A Correction to Review of "*The Bridge of France*"

(See page 1242, November, 1927, PROCEEDINGS)

The paragraph referring to the output of the Hog Island Yard should read: "The total output of the country up to November 11, 1918, in wood and concrete ships was ninety of the former and twelve of the latter, but none of them were built at Hog Island."

UNIV. OF MICH.



International Newsreel

U.S.S. "LEXINGTON"

Sister ship of the U.S.S. *Saratoga*. Both will shortly join the Battle Fleet in Pacific waters. A division of destroyers has been assigned to operate with these plane carriers.

PROFESSIONAL NOTES

3 JANUARY TO 1 FEBRUARY

COMPILED BY

COMMANDER F. W. ROCKWELL, U. S. NAVY,

LIEUTENANT COMMANDER A. C. MCFALL, U. S. NAVY

AND

PROFESSOR HENRY BLUESTONE, U. S. NAVAL ACADEMY

GENERAL ARRANGEMENT

GREAT BRITAIN

The New "B" Cruisers 222

ITALY

Italian Sea Power 222

UNITED STATES

New Anti-Aircraft Gun 224
Mechanical Ear for Location of Airplanes 225
Magnetic Compass Affected by Gyro Repeater 226
Small Air Bombs Sink 5,000-ton Ship 226

FRANCE

Triple *Versus* Quadruple Turrets 226

AVIATION

Automatic Slot Tested by Navy 227
Los Angeles Lands on Deck of *Saratoga* 227
The Curtiss Helicopter 228
Diesel Engine for Airplanes Announced 228
Avigation 229

ENGINEERING

High-Pressure Superheated Steam 230

RADIO

Marine Radio Progress in 1927 231

MISCELLANEOUS

Naval Construction in 1927 233

operate with these plane carriers.

GREAT BRITAIN

The New "B" Cruisers

Naval and Military Record, January 4.—One natural result of the limitations upon cruisers imposed by the Washington Agreement has been to produce considerable uniformity of international design, so far as salient details are concerned. This, of course, is due to the tendency to build up to those limitations. A displacement of 10,000 tons and an armament of 8-inch guns was accepted as a general standard by all the big naval Powers. But of late there appears a disposition to revert to smaller cruisers on the grounds that they will be quite adequate to all the normal duties which come within their rôle. Notwithstanding the prearranged plans of our five years' replacement program of 1925 the idea is gaining ground that the balance of this will be represented by "B" class vessels only. If this assumption proves correct, it means that we shall not build any more 10,000-ton vessels. The "B" class ships, of which the *York,* now under construction at Palmer's Yard on the Tyne, was the first to be laid down, and of which the first dockyard-built example will shortly be put in hand at Devonport, are expected to displace 7,500 tons in unloaded trim. Not long since *The Engineer,* a journal which is usually very reliably informed, stated that the *York* will displace 8,000 tons and mount six 8-inch guns.

The precise tonnage of the new cruisers is immaterial, since in any case this will be very materially below the Washington limit. But this definite reference to the proposed armament is interesting and a trifle puzzling. Mr. Bridgeman, at Geneva, certainly led us to suppose that the "B" class ships will be armed with the 6-inch gun, and his insistent advocacy of the smaller cruiser and the smaller gun was the chief point at issue between the British and the American delegations. If *The Engineer* is correct, it would appear as though the *York* is a compromise between the two types. Yet it is difficult to believe that the Admiralty would sanction such an intermediate design. Therefore, we are led to wonder whether, despite the First Lord's arguments on behalf of the 6-inch gun, it may not be possible that the "B" cruisers will carry an 8-inch armament after all. Six guns in three turrets would give a pretty effective volume of fire, and, if they were so armed, the smaller cruisers would probably be only inferior to the 10,000-ton type in action in the number of weapons they would possess.

This consideration raises an interesting point in connection with cruiser armament. On a given displacement a certain collective total of metal can be imposed—and no more—without producing the very serious defect of over-gunning. The designer has to make his choice between numbers and size. If the "B" class are armed with 6-inch guns they cannot meet the 10,000-ton cruisers of other Powers armed with 8-inch guns with any prospect of success. At least, so the gunnery experts tell us, reasoning, of course, upon the wide difference in smashing power of the two projectiles. But is the obvious always borne out in practice? Fire intensity is a factor to be kept in mind quite as much as weight of metal, always supposing that the combatants are within range of each other. If the heavier-gunned ship is able to fight beyond reach of the lighter-gunned ship, then we have a situation in which argument ceases. But with the modern 6-inch gun such a situation would be more than improbable, because this weapon has a range up to the full limits of fighting visibility.

ITALY

Italian Sea Power

Naval and Military Record, December 21; by Rear Admiral C. N. Grenet, I.R.N. (Retired).—The Fascist program, drawn up and made public at the beginning of 1923, was a very simple affair. It aimed at preserving intact the composition of the Navy as it was at that moment, adopting for each class of ship the age limits commonly accepted in the international discussions at Washington and Geneva. In other words, as regards that portion of the Fleet which was not subject to the restrictions of the Treaty of Washington, the program laid down that it should continue to be maintained on the basis of:

8 light cruisers,
64 destroyers,
42 submarines.

Now in the matter of light cruisers, Italy did not possess (and does not possess today) more than eight old units of the prewar period, namely the *Quarto* and the two *Bixios,* of 3,800 tons, built in Italy; the two

Venezias, of the same displacement, ex-Austrian, and the three *Anconas,* of about 5,000 tons each, ex-German.

As regards the destroyers the situation was rather better, because the construction of the four 30,000-ton super-dreadnaughts of the *Caracciolo* type having been suspended during the war, the Italian shipyards had been able to build a certain number of destroyers. Of the sixty-four units in commission about half could still be usefully employed for a few more years, although they were of an obsolete type. And about the same could be said for the submarines.

Hence arose, in the simplest possible manner, the program which, by logical necessity, a serious Government, such as the Fascist Government claimed to be, must immediately adopt unless it wished to see the fleet decline rapidly to a point at which it would no longer be able to meet even the most elementary requirements of the defense of the country. It was necessary, therefore (1), to replace as quickly as possible the eight light cruisers, which were already very near to their age-limit, and (2) gradually to replace, within the fifteen and twelve years respectively which are generally recognized as the normal life of such vessels, the sixty-four destroyers and forty-two submarines in commission.

To such a program no really objective and impartial person could possibly attribute any imperialistic or aggressive character.

The Fascist Government, in comparison with preceding Governments, has, it is true, effectively speeded up naval construction. But in doing this it has no more than fulfilled its paramount duty towards the safety of the country—a duty in which previous Governments had been lacking without any plausible excuse, not even that of economy, as has been shown above.

It may perhaps be asked: Is Italy really obliged, after a victorious war, to maintain the size of her fleet, and does that fleet correspond to a real defensive necessity?

A glance at the map will show that no country in the world, with the exception of England and Japan is, as regards the motherland, more widely swept by the sea than Italy, and that no country in the world, neither England nor Japan, has so many large and important towns and so many industrial centers situated right on the coast, without any natural defense. Moreover, very few countries are so dependent as is Italy upon the maritime routes for their existence. Italy is compelled—as is the case also with England—to import the greater part of the grain and wheat that she requires, but, in addition to this, her soil contains only the smallest quantity of iron and absolutely no coal or petroleum. All these things must reach her through the three gateways of the Mediterranean—Gibraltar, the Dardanelles, and Suez. It is a vital necessity for Italy to assure at least the possibility of traffic between those three gateways and the peninsula.

Other countries may justify their naval requirements by the distance of their overseas possessions and the need of assuring the movement of troops between the colonies and the mother country. Italy on the contrary, must consider the enormous length of her coast line and not the transport of soldiers and wealth, but that of the goods which are indispensably necessary for the existence of forty millions of men.

In these circumstances all fair-minded people must admit that the Fascist program of maintaining the present size of the fleet is really the very least that a nation could decide upon on the morrow of a great victory.

It must not be forgotten, however, that that victory, from the point of view of maritime defense, has not improved, but rather worsened the situation of Italy, because, while one could be fairly certain before 1914 that a conflict on the west would exclude a conflict on the east, and vice-versa, that does not hold good today.

And now, in conclusion, let us see what precisely are these Italian warships, whether recently completed, in course of construction, or in project, which have been described as the proof of a dangerous imperialism.

1. Battleships

The Treaty of Washington allows Italy to lay down 35,000 tons of battleships for 1927 and 35,000 tons in 1929. For the moment not only has no construction of the kind been begun, but nothing of the kind has even been planned. Experts and amateurs, with the greatest possible variety of opinion, are discussing as to which would be the best type of vessel of this kind for Italy to adopt, but in well-informed circles

it is understood that the responsible authorities consider that the moment has not yet arrived for giving concrete attention to this problem. In the meanwhile nothing in the way of improvement has been done to the five existing battleships, which were commissioned between the years 1912 and 1915.

2. LIGHT CRUISERS

The two 10,000-ton cruisers *Trento* and *Trieste* have been launched and are now undergoing completion. It is thought that they will be ready for their trials in 1928.

A beginning has been made with the construction of four light cruisers of the *Colleoni* class, 5,300 tons, armed with 6-inch guns. They are expected to be ready for commissioning in 1930.

Plans are well in hand for a 10,000-ton cruiser of an improved *Trento* type; it is thought that one can be started immediately and perhaps another a little later.

3. TORPEDO-BOAT DESTROYERS

Between 1919 and the present time there have been completed fourteen destroyers (*Generale* and *Palestro* types), the construction of which was in progress at the conclusion of the war. There have also been built and are now in commission three of the *Pantera* class, of 2,400 tons and 34 knots speed; four of the *Sella* class, of 1,200 tons and 35 knots; and four of the *Sauro* class, of 1,300 tons and 35 knots.

The trials have already been finished, or are in process of completion, of eight destroyers of the *Nembo* class, of 1,350 tons and 36 knots, and these will be commissioned at the beginning of 1928. There are in course of construction twelve *Vivaldis* of 2,000 tons and 38 knots.

No other unit is at present in contemplation.

4. SUBMARINES

No new submarine has so far entered into service since the close of the war. There are under construction four submarines of 1,400 tons, the first of which, the *Balilla,* is now undergoing her trials, and fourteen submarines of about 800 tons each. There are also on the stocks one submarine of 1,400 tons and two of 800 tons, which are particularly intended for mine-laying.

All these vessels will come gradually into commission from the beginning of 1928 until the end of 1930.

No other new construction is announced for the moment, although the advanced age and the antiquated type of the small submarines now in use make it highly probable that provision will very soon have to be made for their replacement.

(5) There have also been built and are now ready four small mine-layers for local services and six others a little larger (800 tons).

With regard to the motor launches, torpedo craft, and anti-submarine vessels, which took part in so many glorious deeds in the war in the Adriatic, to the restricted waters of which they were peculiarly adapted, the Italian Navy is following the policy of constructing a few experimental types fitted with all the latest improvements. It is thought that these can be reproduced on a vast scale during the development of an eventual conflict.

We now think that we have replied exhaustively to the courteous invitation. If anyone should be surprised at not finding here a naval program extending over a long period, we would reply that this system was adopted solely for the purpose of protecting naval development against the changeable moods of Parliamentary politics. Of that precaution the Italy of today has no need. But it does not prevent the course of naval construction from following, as has been seen, a logical, simple, and clear line, which cannot give rise to the slightest suspicion of aggressive intentions except in one who views it with a malevolent eye. Such intentions, indeed, are most decisively excluded by the modesty of the figures.

UNITED STATES

New Anti-Aircraft Gun

Baltimore *Sun,* January 29.—Adoption of the 105-mm. anti-aircraft gun, the longest of that size ever built in America, was announced today by the War Department. The weapon will supplement the 75-mm. and 50 and 30 caliber machine-gun batteries.

The 105-mm., which means a gun of about 4.7-inch bore, is of 60 caliber, or sixty times 4.7 inches in length, nearly thirty feet. It fires a thirty-three-pound projectile to an altitude of more than 36,000 feet and has a horizontal range of 20,000 yards.

Shells leave the muzzle at a speed of 3,000 feet per second, much faster than a

military rifle bullet travels. The gun can be fired fifteen times a minute.

Mechanical Ear For Location of Airplanes

New York *Times,* January 29.—A mechanical listening device for use in warfare has been perfected at the Frankford Arsenal in Philadelphia. The advocates of the supremacy of aircraft have urged that there is no adequate defense against aërial attack, but now huge metal "ears" can pick up a plane in daylight and darkness fifteen miles away, follow it to the effective range of an anti-aircraft battery and spot the plane so precisely that there is said to be small chance of the invader escaping.

Experiments at Aberdeen Proving Ground and in war games have demonstrated the value of the mechanical ear, and it is now being manufactured for army equipment. The device was developed out of experiments conducted by Captain H. B. Ely and his associates. Captain Ely is an officer in the United States Ordnance Corps and is in charge of the acoustics laboratory at the Arsenal.

The sound locator in its present form is a new piece of ordnance and is part of the fire-control equipment of a modern anti-aircraft battery. It first came into use during the war, but has only recently been perfected. It is built on a light wheel carriage that can be lifted into a truck. Its most conspicuous elements are four large metal horns, about fifteen feet long, of a type that has been applied to radio sets and phonographs. The horns work in pairs and are attached to receivers, which the two observers clamp to their ears. One follows the horizontal motion of the plane and the other the vertical movement.

Although sound travels through the air at 1,100 feet per second, one ear of a man turned sideways to the direction from which the sound vibrations arrive will hear the sound before it reaches the second ear. Despite the fact that there is but a fraction of a second difference, the period is long enough to be detected by the brain, which tells the listener that the sound is at a certain angle to the right or left. If the hearer turns his head to confront the sound waves, both ears are struck simultaneously, and the sound is known to come from the front.

This phenomenon, known as the "binaural phase effect," is the principle upon which the sound locator works. It has been found necessary to use radio amplification in order to intensify the noise of an oncoming plane. The fifteen-foot horn, without electrical aid, provides enough amplification for the ear to detect the enemy.

On the sound locator also are scales which make corrections for wind and temperature. The angles at which the horns are moving make it possible for the other members of the crew of five or six instantaneously to figure the distance.

As it is not possible in experiments and in the war games to fire the battery at the airplanes droning in the night, a searchlight is synchronized with the sound locator. The enemy aircraft is picked up while it is far out of range of the anti-aircraft battery, and when it has moved within range, according to the data on the sound locator, the searchlight is snapped on, and, if it spots the plane directly, it is considered that the craft has been destroyed.

In recent night practice of this kind seven out of eight planes were picked up by the searchlight long before they had reached the practice objective.

At Aberdeen telescopes are fixed over a series of grid-etched mirrors, and the appearance of the image of the plane in the mirrors records its movements and position in the sky.

In experiments with the Ely "ear," the sound locator and the sixty-inch searchlights are separated by a distance of several hundred feet, but connected electrically through a control box called the comparator. Small synchronous motors transmit the settings of both sound locator and light to the comparator. By keeping the searchlight pointer matched with the sound locator, the searchlight will follow the "ear," ready to illuminate the plane when the signal is given.

Fliers will be unable to defeat the sound detector by muffling their engines, because the propellers make sufficient noise to be heard; gliders will reveal themselves through the vibration of their struts and wires, and bombers are generally too heavy to glide more than a short distance.

Magnetic Compass Affected By Gyro Repeater

Submitted by Lieutenant C. G. Moore, U.S.N., U.S.S. *Camden*.—Since the installation of the gyro compass on board the *Camden* in October, 1925, the navigator and his predecessor have had several baffling experiences trying to accurately compensate the magnetic steering compass.

The usual method employed when compensating and swinging ship was by steadying the vessel on a true heading by gyro. However, after the ship had been placed on a certain heading for approximately ten minutes and normally the magnetic compass should be steady, it continued to oscillate slowly through about four degrees.

As the heading of this compass never remained constant, despite the reading of the gyro, it was first believed that stray currents induced by grounds in the wheel house caused the fluctuation. A test of all circuits disclosed no grounds.

This condition persisted despite the fact that the steering compass was frequently exchanged with spares in the storeroom. Recently, all the magnetic compasses were taken ashore and tested for sensibility and time of vibration. These tests indicated that the compasses returned to their original reading after being disturbed in a normal interval and, consequently, the fault lay elsewhere.

On the evening of December 20, 1924, while in the wheel house the navigator noticed that the magnetic compass commenced a slow oscillation when the repeater on the bridge was cut in with the master-gyro.

From the above it is evident that the strong electro-magnets in the gyro compass repeater have an effect similar to that of a loadstone magnet when the repeater is installed adjacent to the magnetic compass.

Small Air Bombs Sink 5,000-ton Ship

New York *Times*, January 16.—The sinking of the 5,000-ton steamship *Manari* with 25-pound air bombs intended only for use against ground troops has been reported to the War Department from Panama.

The obsolete ship was towed to sea by a mine planter and planes of the Twenty-fourth Pursuit Squadron of the Air Corps rained small bombs on her on the theory that she was a warship and that the mission of the planes was to drive the crews away from her anti-aircraft guns and open the road for the bombers which were bringing up 100-pound projectiles to sink the ship.

The pursuit planes had not completed dropping fragmentation bombs, however, before the *Manari* rolled over and went down, to the complete disappointment of the bombers, who never got a chance at her.

Air Corps officers regard this unexpected result as striking evidence of the vulnerability of merchant shipping to the smallest bombs used by the Air Corps and which were not designed for demolition purposes.

Each pursuit plane with a speed of 150 miles or more an hour and a cruising radius of 550 miles can carry five of the 25-pound bombs and the *Manari* experiment, in the opinion of Air Corps officials, presents unexpected possibilities in the field of air attack against merchant craft engaged in military service.

FRANCE

Triple Versus Quadruple Turrets

Naval and Military Record, December 28, by J. B. Gautreau.—Defensive considerations, the requirements of salvo firing, and the desire of adding as much as practicable to the number of guns carried have led several leading Powers to the adoption of triple turrets. Whatever objections this type of gunhouse had at first against it have now vanished as the result of twenty years' gradual improvements. Arguments at the back of triple turrets hold good, with greater force, in favor of quadruple turrets that were first erected on board the 25,000-ton "Normandies" (so inconsiderately discarded when half finished just for the sake of demonstrating France's unimperialistic aims). The idea has not been completely abandoned, and to triple turrets with their good points, Paris ingénieurs are yet hoping to oppose quadruple turrets with still more substantial advantages for both defense and attacks as well as for stability of cruisers. With two quadruple turrets a 10,000-ton ship could mount besides two 8-inch guns, either in a twin turret aft and firing over the second quadruple turret, or in single gun positions, each on one side, firing axially all that for about the same

total weight. The center of gravity would be brought lower, and the whole hull structure would gain in strength as has been found was the case in the "Normandies." For quick salvo firing with two or four guns, the quadruple gun house is ideal, as it is also for ventilation, defense against asphyxiating, or incendiary bombs, and for endurance rate of fire as the result of the facilities it affords to change gun crews in action or at least to strengthen them by the coming in of fresh elements. Slight disappointments over the question of stability have brought French designers to work the question of the massing of the artillery both in cruisers and in flotilla units, and changes in the distribution of armament on board are impending. French gunners are in agreement with the late Admiral Sturdee: since cruisers are made to fight and the gun remains the primary weapon, stability of platform is the most desirable of sea qualities.

AVIATION

Automatic Slot Tested by Navy

Baltimore *Sun,* January 27.—The Handley-Page automatic slot, designed to minimize or prevent nose dives, stalling and incipient tailspins, was put through a series of tests at the naval air station here today and pronounced a success by the officers in charge. Rear Admiral Moffett, chief of the Bureau of Aëronautics, termed it one of the greatest safety devices ever invented for aircraft.

The effect of the "automatic slot" is to increase, when necessary, the lifting capacity of the wing and to prevent "burbling" or "eddying," the cause of loss of lift at the usual stalling angle.

It consists of an auxiliary air foil switch which, when closed, is part of the nose of the ordinary air foil. It is secured to the wing of the plane in such a manner that under ordinary flying conditions and at normal or fast speed it remains closed.

When, however, the speed of the plane is reduced beyond a certain point, the slot opens automatically, giving the plane the increased lifting capacity.

The device was installed in a Navy training type seaplane which, with Captain H. C. Richardson at the controls, took off from the Potomac River. High in the air the pilot attempted to force the plane into nose dives and tail spins. He was not successful.

Once he deliberately stalled the motor and instead of crashing to the water the craft settled down smoothly on the surface of the Potomac.

Comparative tests with other planes are now contemplated and if these give further evidence of the practicability of the device it is considered probable that the "automatic slot" will be made a part of the standard equipment of all Army and Navy aircraft.

Patent rights were acquired by the Navy for the Government from British interests in 1922.

"Los Angeles" Lands On Deck of "Saratoga"

New York *Times,* January 29.—The landing of the dirigible airship *Los Angeles* on the deck of the aircraft carrier *Saratoga* yesterday was described to Secretary Wilbur today by Lieutenant Commander Charles E. Rosendahl, in command of the airship, as completely successful and proving "the feasibility of landing an airship on the deck of a large ship."

Lieutenant Commander Rosendahl's report was as follows:

"At 2:30 P.M. the *Saratoga,* then at sea about thirty miles south of Newport, Rhode Island, headed into the wind at a moderate rate of speed. As planned, the *Los Angeles* made one practice approach from leeward to one side of the *Saratoga,* at an altitude of about 225 feet. The *Los Angeles* then circled and made the approach for the landing.

"The *Saratoga's* speed was at fifteen knots into the wind. The wind was light but very gusty, thereby lending difficulty to the operation. On reaching a point over the *Saratoga's* deck a gust carried the *Los Angeles* from 225 to 400 feet, but she was maneuvered down again quickly. Manila trail ropes were dropped to the *Saratoga's* deck and then men manning these lines pulled the *Los Angeles* down to the deck.

"With existing winds the problem of holding the *Los Angeles* on the deck was somewhat difficult. A hose was led to the *Los Angeles* and fuel, water, supplies and all passengers were transferred from one ship to the other. The entire operation, including the practice approach, consumed only about an hour.

"In spite of the fact that this was the first attempt of a large rigid airship to land on the deck of a ship, and although hasty arrangements and only crude equipment were available on this initial attempt, this operation was considered to have proved the feasibility of landing an airship on the deck of a large ship."

The report served to increase the belief of naval officers here that dirigibles may be refueled and even repaired when at sea, not only from naval but from commercial carriers. It means, they contended, that the radius of operation of dirigibles has been immeasurably increased.

Rear Admiral Moffett, chief of the Naval Bureau of Aëronautics, said the achievement was of outstanding significance to aëronautics. Secretary Wilbur expressed his pleasure that the operation had proved a success.

Naval officers are anxious to view the photographs of the landing. No news photographers were present, but official cameramen of the Navy were alongside on a destroyer and obtained a number of excellent photographs.

The Curtiss Helicopter

Scientific American, February, 1928.—The Board of Directors of the Curtiss Airplane Company have recently voted a sum of $75,000 for the experimental development of a helicopter. The newspaper accounts are somewhat conflicting and were apparently quite unauthorized. We can only speculate on the exact characteristics of the craft.

There are apparently four blades or wings, revolving in a horizontal plane about a central vertical axis, thus far resembling the La Cierva autogiro. In the autogiro, an ordinary airplane propeller pulls the craft forward, and the blades revolve solely under the action of the blast of air produced by the forward motion. In the Curtiss helicopter, on the other hand, a small air-cooled engine, between 50 and 75 horsepower, is placed at the center point of each blade; the engine drives a propeller, whose thrust pulls the blades around. Thus revolution of the blades is secured by direct application of mechanical power, but without the use of any gearing, lengthy transmission shafting or clutches as in many previous forms of the helicopter. A distinct advantage in simplicity is gained thereby.

With a wing spread of thirty-five to forty feet, and total engine horsepower of 300, there will be no great difficulty in securing vertical lift and rapid vertical climb, although the 1,900 feet a minute mentioned by the newspapers seems somewhat optimistic.

Presumably forward motion will be secured by nosing the craft down, so that the thrust of the airscrews has a forward component.

The blades, when revolving with side movement meet the wind rather faster when going into the wind than when moving away from it. This introduces a difficulty in lateral stability, the wing going into the wind producing a greater lift than the one going away from it. La Cierva met the difficulty by having his blades free to swing up and down. In the Curtiss helicopter, it may be necessary to provide some form of cam motion for the blades, diminishing or increasing the angle of incidence at appropriate points on the circular path.

There are of course serious problems in control involved in this new design. The reliability of the engines and of the gasoline system when swung around at the end of a long arm is a point requiring careful thought.

The question of efficiency in forward flight is also a difficult one. No rotating element used to give sustention is likely to be as efficient, in forward flight, as a fixed airfoil. The driving propellers will be subjected to peculiar conditions, the air striking them sometimes head on, sometimes from the side.

But perhaps a great forward speed is not contemplated. The function of the helicopter is to rise from a roof, and to fly to the nearest landing field. A relatively slow forward speed would make it a valuable auxiliary to air transport.

Diesel Engine for Airplanes Is Announced

Christian Science Monitor, January 7.—A Diesel engine for airplane use which he believes may revolutionize aëronautical power plant design has been perfected by Dr. Elmer A. Sperry, inventor of the gyroscope compass, according to an announcement just made here.

Dr. Sperry, it is reported, has succeeded in reducing the weight of his Diesel engine from 100 pounds to two pounds for every horsepower it develops. This compares very favorably with the most efficient gasoline airplane motors, it was said. Both European and American engineers have long been experimenting in an effort to reduce the weight of Diesel engines because of other advantages which they possessed.

The Diesel differs from the gasoline motor mainly in that it has no spark. Combustion is obtained by the heat generated by compression of the fuel mixture. A heavy, almost non-inflammable oil, is used, which practically eliminates the fire hazard in airplanes, Dr. Sperry said. In addition, he declared the fuel would give one-third more power in proportion to its weight than would gasoline in the present-day motors.

The cost of the fuel used for Diesel engines is only about one-fifth that of aviation gasoline, Mr. Sperry said.

The new Diesel motor is water-cooled but Mr. Sperry believes that an air-cooled design can readily be developed. The engine consists of two banks of four cylinders in "V" position, operating on the same crankshaft. Units of 100 horsepower up to 1,000 horsepower can be developed, Mr. Sperry says.

Experiments with the motor were conducted at the Sperry Development Company in Brooklyn, of which Mr. Sperry is the head. He was assisted by his two sons, Elmer A., Jr., and Edward Sperry and associate engineers of the company.

Avigation

Engineers and Engineering, December. By Commander R. E. Byrd.—It is, in my opinion, possible today, with the instruments available, to navigate an airplane, over long distances without landmarks, almost as accurately as a surface ship can be navigated. The airship has advantage over the surface ship, in that there are no submerged rocks for it to crash into. Even in a fog, a plane can be navigated accurately, with radio bearings and the radio beacon. Away from civilization, where no radio stations are within range, neither the surface ship nor the air craft can be navigated with any degree of certainty of hitting the mark. The surface ship can stop her engines and wait for the fog to clear, but the airplane must keep going, and when the fuel gives out, she cannot land in the thick fog, even if there is a smooth landing place underneath. That is where the surface ship has the advantage of the airplane.

Fog has always been, and still is, the greatest enemy to navigation, both on the surface and in the air, and it is such a big handicap to aviation that science must soon conquer it. It undoubtedly will be conquered. The radio beacon is a step in the right direction. This apparatus can keep the plane on the course, just as the compass does, and can guide the plane accurately to itself through any haze or weather conditions. When the plane is on its course, the radio operator receives two dots, we will say; when the plane goes off the course to the right, he will receive a dot and dash; and when off to the left, two dashes. Then, the radio operator can get lines of position from two different stations, and where these lines intersect, gets his fixed position. If he gets enough of these, he can tell how he is being drifted in the fog. That is the only possible way to obtain the drift of a plane, caused by the wind, when flying in a thick fog. Science has been striving for some years to develop an instrument that can be used on the plane itself to give wind drift, but so far as I know, has been entirely unsuccessful.

The pilot cannot make a navigator of himself over night. When he has to navigate over the sea, it is certainly a great advantage for him to know something about the sea. The idea got around that it would be an easy thing for a land pilot, without any knowledge of navigation, to fly over the hundreds of miles of ocean, and hit his objective. How many of those navigators who have been lost on the recent transatlantic flights made any real pretense at navigating? They simply followed their compass courses, and I am not sure how accurately the error was taken out of those compasses. I am afraid that some of the pilots who flew for Hawaii missed the Islands and went on beyond them.

Maitland and Hegenberger, though they are not even web-footed, accomplished a perfect navigation performance. They were as certain of hitting their destination as a surface steamer would have been. They had a drift indicator, which gave the drift caused by the wind. They had a radio

beacon at Hawaii to guide them on the course. They had an airplane sextant, and Hegenberger constantly obtained lines of position from the celestial bodies, and they had large bombs to drop on the water for use at night. Here is where the Navy must take its hat off to the Army.

I had all of these instruments on the North Pole flight, except that I was not able to get radio bearings and there was no radio beacon. Our compasses were no good and so we had to use a sun compass, which was invented especially for Arctic work. On that flight I spent at least one-third of my time watching the drift caused by the wind. I got a little snow-blind in one eye sighting so much on the snow. We had to fly out from a small island, strike a point in the middle of a frozen ocean ahead of us, and then be sure that we would hit that island on our return; because if we should miss it, there would be no chance of our getting back. That was why I took the drift so carefully.

ENGINEERING

High-pressure Superheated Steam

The Shipbuilder, January, 1928.—The steamship with coal-burning, triple-expansion engines is still numerically the most widely used type of merchant vessel; and many shipowners, engineers and economists in this country consider that it is to Great Britain's advantage that she should devote thought and money to the further development of this type of tonnage. It is often urged that the use of oil under boilers is quite unwarranted, apart from large passenger ships, vessels of war and certain special types of craft; the very high thermal efficiency of the oil engine justifying the conservation—so far as possible—of liquid-fuel supplies for use with this class of marine prime mover.

The production of oil from coal, of course, is an aspect of the case which must not be overlooked, as its commercial success would undoubtedly bring about profound changes in the fuel situation, particularly where this country is concerned. No less an authority than Sir Charles A. Parsons recently spoke on this topic in a very straightforward manner. His remarks were prompted after listening to Mr. Maurice S. Gibb's presidential address to the North-East Coast Institution of Engineers and Shipbuilders, when the latter championed the cause of the coal-using steamship. Sir Charles expressed agreement with Mr. Gibb, and said that the coal-owners were beginning to investigate the whole situation. "We engineers," he added, "have to help them (the coal-owners) by showing that superheated steam is cheaper in ships than oil in Diesel engines."

Whether all engineers or shipowners consider that Sir Charles is right is a speculation which does not concern us at the moment. The fact remains that all right-thinking Britons believe it is desirable, even essential, to develop the coal-burning installation at sea to a degree which is comparable with what has been done on land. Such development need not interfere with the close study of the motorship and its problems. Indeed, in view of the share which Great Britain has borne in bringing both the steamship and the motorship to their present stages of development, it is highly desirable that our marine engineers should devote themselves to the further improvement of both steam and internal-combustion machinery.

During the past few years there have been signs that the performance of the marine reciprocating steam engine was occupying the attention of numerous engineers. The result of this study is to be seen in the poppet-valve engine, the exhaust steam turbine driving the same line of shafting as the reciprocating engine whose steam it uses, the compound uniflow engine, and other developments. Certain of these new ideas have achieved commercial success, and it is probable that their influence on marine engineering in the future will be considerable.

In all these departures steam at moderate pressures (under 300 pounds per square inch) has been used, and it was left to Sir Charles Parsons to demonstrate with a turbine installation what could be obtained in the way of further economy by the use of really high steam pressures and temperatures. It has been argued, however, that in many ways the reciprocating steam engine is preferable to the turbine for high pressures, particularly where the power of the installation is moderate. For this reason it was only natural that the reciprocating steam engine employing really high boiler pressures (500 pounds per square inch or

thereabouts) would ere long be installed in a sea-going vessel in order to hasten the development of the high-pressure, high-efficiency cargo steamship of moderate power. The *King George V* indicated what striking economies were attainable by the application of higher pressures and higher superheats, and it was believed by many engineers that about the same coal consumption per indicated horse-power per hour—about 1·1 pound—was obtainable from a triple-expansion steam engine of suitable design and of about the same or rather lower power.

A Dutch concern—the Stoomvaart Maatschappy "Nederland," of Amsterdam—had the courage and foresight to build the pioneer high-pressure reciprocating-engine installation for a ship. They recently fitted their single-crew cargo steamship *Borneo* with a drop-valve, triple-expansion engine of about the same power as the machinery of the *King George V*—3,600 I.H.P. This engine, constructed by the Werkspoor Company, of Amsterdam, takes steam at 500 pounds per square inch pressure and 700 degrees F. temperature from two Hawthorn-Armstrong water-tube boilers, also constructed by the Werkspoor concern. It will be noted that the pressure and temperature conditions are about the same in this vessel as in the *King George V*, while both are coal-burning ships; but whereas in the British vessel the boilers are hand-fired, mechanical stokers are fitted to the boilers of the Dutch ship.

This pioneer high-pressure, reciprocating steam engine was described by Mr. S. G. Visker in a paper read before the North-East Coast Institution of Engineers and Shipbuilders recently. Mr. Visker is the superintendent engineer of the Nederland Line, and his paper gave full details of the conversion of the machinery of the *Borneo* from an ordinary triple-expansion engine to a high-pressure plant with water-tube boilers and mechanical stokers. With high-pressure, highly superheated steam, ordinary slide valves are impracticable for sea service, and so double beat poppet valves were fitted throughout the engine of the *Borneo*. These valves are interesting in that they are hydraulically operated—a type of valve gear which has been successfully used on land for many years, but which, to the best of the writer's knowledge, has only been fitted to two or three marine steam engines. Mr. Visker's paper was full of interest; and the frank way in which he discussed the various difficulties (which included the bursting of four boiler tubes with no ill effects) encountered and overcome in this installation, was not the least interesting feature of his contribution.

Naturally, the justification for any such radical departure from normal practice must be shown in the performance of the plant, and in this respect the *Borneo* must have proved a very great encouragement to all who were associated with the conversion. Mr. Visker stated that the coal consumption (good-quality fuel) had worked out at slightly over 1.1 pounds per I.H.P. per hour, which figure, it is interesting to recall, is but slightly higher than that of the *King George V*, making no correction for coal quality. The author expressed the opinion that, with an exhaust-steam turbine in place of the existing low-pressure cylinder, an even better result would be obtained; and there is little doubt that he is correct. Important developments along these lines, therefore, may be expected to follow in the near future.

RADIO

Marine Radio Progress in 1927

Marine Journal, January 1.—Marine radio has continued its steady progress during 1927. Marked strides have been made in the technique of marine radio. More ships have been provided with radio facilities. Better equipment has come to replace former equipment rendered obsolete by the development of infinitely superior methods. The radio direction finder is becoming ever more widely accepted as a necessary aid to navigation. And the way has been paved for still greater advances during 1928 and succeeding years.

The outstanding development in marine radio during 1927 has been the equipping of ships with vacuum tube transmitters. The conversion from spark transmitters to vacuum tube transmitters has now been going on for the past three years. The task has been a difficult one, because of the vast number of installations to be changed over, and the considerable investment represented in the old equipment. In some instances new equipment has been provided, while in others the old spark transmitters have been ingeniously and efficiently made over into

vacuum tube transmitters, at minimum cost. The past twelve months have witnessed a bulk of this vast undertaking completed. All RCA marine equipment, whether afloat or ashore, has now been converted to vacuum-tube, continuous-wave transmission, while it is estimated that at least twenty-five per cent of the entire American merchant marine is so equipped by now. Many steamship companies owning their radio equipment have begun to follow suit, so that all American shipping, with very few exceptions, will eventually be provided with vacuum-tube transmitters. The recent International Radio-Telegraphy Conference recommended the conversion of all marine radio transmitters to vacuum tube practice not later than 1940, so that the Radio Corporation of America, in this respect, may be said to be twelve years ahead of time.

Over 500 American ships have by now been equipped with vacuum tube transmitters, with the remainder still operating spark and arc sets.

The range of marine radio communication has been increased at least one hundred per cent in changing over to vacuum tube operation. Distances formerly limited to night-time operation under the most favorable conditions, are today spanned in broad daylight under unfavorable conditions. Even the static infested atmosphere of the Carribean and the Gulf of Mexico present no insurmountable obstacles for the vacuum tube transmitter.

Of even greater importance than the distance spanned and the overriding of static, however, is the sharp tuning which the vacuum tube transmitter, with its continuous waves, makes possible. Interference, once so prevalent not only among marine radio transmitters themselves but also with program broadcasting, has been reduced to the vanishing point. The present vacuum tube marine transmitters have five available wavelength bands, as against three for the old spark transmitters. What is more, because of the exceedingly sharp tuning of the waves, a number of channels may be established within a narrow wavelength band, without undue interference, whereas the old spark transmitter was notorious for its broad tuning and consequent interference.

During 1927 the United Fruit Company, operating the largest radio establishment of any steamship company the world over, completed the change over from its former spark transmitters to the latest type vacuum tube transmitters.

As an indication of the increased span and efficiency of marine radio service due to vacuum tube transmission, it is interesting to note that most ships are now reached directly by the land stations without relaying, as in the past. Furthermore, the former practice of virtually broadcasting messages from highpower coastline stations to ships in mid-ocean, which could not be reached nor heard by the usual marine radio coastal station, at the special rate of fifty cents per word, has passed away with the advent of powerful vacuum tube marine transmitters which reach out to mid-ocean and beyond, at a flat rate of twenty-one cents per word.

Of particular interest, in the past year have been the short-wave experiments conducted with the S.S. *Carinthia* during its world cruise. This steamer, equipped with shortwave equipment in addition to regular apparatus, kept in daily communication with RCA stations during the entire journey of some 28,000 miles. Even when the *Carinthia* was on the opposite side of the globe, it communicated with RCA stations in the United States.

With the exception of the Great Lakes no additional coastal stations have been required. Although traffic has increased steadily, the multiplexing of RCA land stations, with a plurality of transmitters, receivers and operators, forming what are virtually marine centrals, has more than taken care of marine traffic requirements.

Perhaps the most thrilling rôle of marine radio during 1927 has been in connection with the transoceanic airplane flights. Days and weeks before the various flights, marine radio was enlisted for the purpose of gathering weather bulletins from ships scattered over the ocean, and these bulletins were collated by weather bureau experts to determine the probable weather over the different proposed courses. The flights were followed by ships at sea, who flashed back reports to the States. In cases where the planes were equipped with radio transmitters, close contact was maintained through ships and marine radio coastal stations.

MISCELLANEOUS

Naval Construction in 1927

The Engineer, January 6.—Although the past year was rendered noteworthy, so far as naval shipbuilding is concerned, by the completion of important ships at home and abroad, it witnessed no special activity in any quarter, and there was a complete absence of anything which could possibly be interpreted as competitive building. On the contrary, the rate of construction was abnormally slow. Every naval programme, including our own, is well behind time. The laying-down of new keels has, in many cases, been postponed till long past the dates originally contemplated, and on vessels already laid down work has proceeded at a leisurely pace. Generally speaking, the time now taken to build and fit out a warship of major tonnage is almost twice as long as before the war. This, of course, is due, not to any falling off in dockyard or workshop efficiency, but to economic and political factors. At the same time it is true that the latest type of battleship is both considerably larger and more complicated in design than her forerunner of pre-war days, and this circumstance may account in some measure for the slower rate of construction, as exemplified by the battleships *Nelson* and *Rodney,* each of which has taken over four and a half years to complete. Irrespective of the reasons mentioned above, the tardy construction of these vessels, and of the first "County" cruisers, was attributable in part to labor disputes, which have been the bane of the shipbuilding industry in recent years.

British Empire

The largest vessels completed in 1927 were the twin battleships *Nelson* and *Rodney,* the first in October, the second a month later. Both were laid down in December, 1922. The *Nelson* was built by Armstrong, Whitworth and Company, and engined by the Wallsend Slipway and Engineering Company, while her sister ship was both built and engined by Cammell Laird and Company. As the type has already been fully described in these columns, it only remains to supplement the leading dimensions, etc., by certain data which have recently been released by the Admiralty. The length is 660 feet between perpendiculars, and 702 feet over all; the extreme breadth is 106 feet, the mean draught 30 feet, and the standard displacement 35,000 tons. As the latter figure includes neither oil fuel—of which 4,000 tons can be stowed—nor reserve feed water, it is clear that the actual displacement will be nearer 40,000 tons. The fuel capacity, which is greater than that of any previous battleship, is surpassed only by the battle cruisers *Renown* and *Repulse,* which carry 4,289 tons and 4,243 tons respectively. The machinery, consisting of turbines driving twin screws through single reduction gearing with large bearing surfaces for the pinion and wheel bearings, has a designed output of 45,000 S.H.P. Each set comprises one high and one low-pressure turbine. The admission of steam to the turbines is regulated by nozzles and interstage valves. There are eight water-tube boilers of the three-drum small tube pattern. During their trials both ships exceeded the designed power, and a higher speed than the 23 knots specified in the contract was attained in each case. They have proved to be remarkably economical in fuel consumption, which at full power is thirty per cent less than that of the *Revenge,* a battleship of corresponding speed but smaller tonnage. At cruising speed the new ships burn only 2.7 tons an hour, and proportionate to their size they are probably the most economical steamers in the Navy. Electric or electro-hydraulic power has been largely adopted for the auxiliary plant, such as boat hoists, capstans, turret machinery, steering gear, secondary armament ammunition hoists, pumps, fans, etc. The hull has no external bulge, but underwater protection is more complete than in earlier capital ships. The main armor belt has a thickness of 14 inch, turret armor varies from 11 inch to 9 inch, and there is robust deck protection, which is believed to confer immunity from serious damage by air bombs. The nine 16-inch guns are of a new model, 45 calibers in length, and are housed in triple turrets, which offer a very small area of target. It is well-known that the mountings of these guns embody many novel features. The twelve 6-inch guns, twin-mounted in closed turrets, appear to have a very high angle of elevation, and could presumably be used against aircraft under favorable conditions. Two torpedo tubes are fitted, including one in the bows—a position which has evoked criticism. The cost of these battleships, com-

plete, is £7,405,269 for the *Nelson*, and £7,488,274 for the *Rodney*. Both have now joined the Atlantic Fleet, the former as flagship of the Commander-in-Chief. Under the Washington Treaty no further capital ship may be laid down for the British Navy until the year 1931.

Of the five "County" cruisers provided for in the program of 1924, and laid down towards the end of that year, only the *Berwick* had been placed in full commission at the moment of writing. This vessel was built and engined by the Fairfield Company. The *Cumberland*, built and engined by Vickers, was to have been ready for sea in September last; the *Cornwall*, built at Devonport (engined by Beardmore), in October; the *Suffolk*, built at Portsmouth (engined by Parsons), in November; and the *Kent*, built at Chatham (engined by Hawthorn Leslie), in February, 1928; but all four ships appear to have been somewhat delayed. With the exception of the *Berwick*, the first group of "County" cruisers has taken over three years to complete. All essential details of this type have now been released. The length is 590 feet between perpendiculars, and 630 feet over all; breadth, 68 feet, 4 inches; mean draught, 16 feet, 3 inches; standard displacement, 10,000 tons. The machinery consists of geared turbines designed for 80,000 S.H.P., taking steam from boilers of the Yarrow pattern. Although the contract speed of 31½ knots is rather below that of contemporary foreign cruisers, the steam trials of the *Berwick* and the *Cumberland* are understood to have shown that the ships of this class can not only reach their designed speed with ease, but, thanks to their high freeboard and beautiful lines, are able to maintain in all but the severest weather a steady sea speed which is believed to be not inferior to the best pace of any foreign cruiser on a protracted run. Where the "County" cruisers excel is in respect of their steaming endurance. Owing to the large fuel supply of 3,400 tons and the economical working of the machinery, they are able to cover a greater distance, whether at full, medium, or low speed, than any other cruising ship now afloat. Protection is afforded by bulges along the water-line, strong steel decks, and armoured trunks to the munition hoists. The 8-inch guns, of which eight are mounted, are the most powerful and longest-range weapons of medium caliber ever carried in British warships. They are 50 calibers in length, the projectile weighs 283 pounds, and as the mountings permit of great elevation the extreme range is probably only limited by visibility. In view of aviation developments in other navies, we hope that it will be found possible to equip these vessels with aircraft. The design is, on the whole, an admirable one, and such improvements as the trials have suggested will be worked into later vessels of the same generic type. Two of these were launched in the year, the *London* at Portsmouth, in September, and the *Devonshire* at Devonport in October. The *Shropshire*, which is being built by Beardmore, and the *Sussex*, by Hawthorn Leslie, are expected to go afloat early in the present year. They are practically replicas of the *Kent* class, but the designed speed is unofficially reported to be 32 knots. Two further cruisers of the 10,000-ton class were begun in 1927, the *Dorsetshire* at Portsmouth and the *Norfolk* by the Fairfield Company. There are, finally, the two Australian ships, *Australia* and *Canberra*, which were launched by John Brown and Company, at Clydebank, last year on March 17 and May 31 respectively, and are due to be completed in the coming spring. Thirteen cruisers of the heaviest type permitted by Treaty have therefore been provided for the naval forces of the British Empire. The Government has decided to suspend the construction of further vessels of this class in the hope of promoting a new international agreement for the restriction of naval armaments. The *York*, a "B" class cruiser, of approximately 8,400 tons, to carry six 8-inch guns, was begun during the year by Palmers Shipbuilding Company, at Jarrow, and a second vessel of the same class is to be laid down at Devonport on March 15 next. No other cruisers are projected for the time being.

Our first post-war destroyers, *Amazon* and *Ambuscade*, completed their trials early in the year, in both cases with success. The *Amazon*, of 1,330 tons, was built by Thornycroft; the *Ambuscade*, of 1,210 tons, by Yarrow. These vessels, which have previously been described in *The Engineer*, have Yarrow boilers and Brown-Curtis geared turbines developing 35,000 S.H.P. Their designed speed of 37 knots is the highest yet attempted in British destroyers.

During her official speed trials on the Clyde last March, the *Amazon* attained a mean of 37.47 knots on a six-hour run. On the measured mile her mean speed was 37.96 knots. They differ from earlier destroyers in the increased height of freeboard, the larger fuel capacity, and improved accommodation for the personnel. Contracts for one flotilla leader and eight destroyers are to be placed this year, but no details of these vessels are obtainable.

Three submarines were completed during the year, the *Oberon* for the Royal Navy, the *Oxley* and *Otway* for the Royal Australian Fleet. The first named is a boat of 1,346 tons, mounting one 4-inch gun in armored position. The Australian boats are of similar design but about 50 tons heavier. The British building program for 1927-28 includes six further submarines of the "O" class, which have not yet been ordered. Other boats of the same class now on the stocks are the *Odin* (Chatham), *Olympus* and *Orpheus* (Beardmore), *Osiris, Oswald,* and *Otis* (Vickers), belonging to the 1926-27 Navy Estimates. According to an answer given in Parliament last month, the huge submarine *X-1* is still officially listed as "building." This vessel was begun more than six years ago, and is understood to have served a commission in the Mediterranean Fleet.

United States

The outstanding event of the year was the completion of the aircraft carrier *Saratoga.* This vessel—the largest ship of any description hitherto completed in the United States, was begun in September, 1920, at the New York Shipbuilding Company's yard—now operated by the American Brown-Boveri Company. She was designed as a battle cruiser, but the Washington Conference caused work to be stopped on her and her sister, *Lexington,* and subsequently both were re-designed as aircraft carriers. The change involved a reduction of 10,000 tons in the displacement, and as the propelling machinery has not been altered, it is expected that the speed will be considerably higher than that originally specified. The length of the ship is 850 feet between perpendiculars and 888 feet over all. The maximum breadth of the flight deck is 106 feet, and the draught at the legend displacement of 33,000 tons is 30 feet. The turbo-electric propelling plant develops 180,000 S.H.P., and a speed of 34½ knots is expected. The power of this machinery exceeds the combined output of the six American battleships equipped with electric drive, viz., the *New Mexico, California, Tennessee, Maryland, Colorado,* and *West Virginia.* It is understood that the hull is armored on the waterline and has bulge protection associated with a very elaborate system of subdivision. Eight 8-inch 50-caliber guns, in double turrets, form the main armament, and there are twelve 5-inch 25-caliber guns for use against aircraft. The turrets, bridge, mast, and a huge elliptical funnel casing are all placed at the extreme starboard side of the flight deck, the boats being stowed in recesses on the deck below, where the anti-aircraft guns are also emplaced in groups of three. It is of interest to note that the boilers in both the *Saratoga* and the *Lexington*—the highest-powered ships ever built— are of British design. The former has sixteen White-Forster boilers, while the *Lexington* has the same number of Yarrow generators. The working pressure in both types is 295 pounds to the square inch. Each of the four propeller shafts is driven by two electric motors of 22,500 H.P. each. There are, besides, nearly a thousand motors for auxiliary purposes, and it is stated that every mechanical operation on board is performed by means of electricity. Stowage space is provided for eighty-five airplanes, but it is obvious that only a small portion of that number could be handled at the same time. The complement of the *Saratoga* numbers 2,034 officers and men, 565 of whom are borne for aviation duty. The *Lexington* will probably go into commission next month. These ships have been severely criticised in American naval circles on account of their enormous size, heavy cost (about £8,500,000 each), and vulnerability, and it is certain that no further units of the class will be built. The aircraft carriers projected in the new program will displace only 13,000 tons.

The first two cruisers of the "Treaty" class, *Pensacola* and *Salt Lake City,* which were laid down in the summer of 1926, are still on the stocks, the former at New York Navy Yard, the latter at the Camden Yard of the American Brown Boveri Company. Their particulars are as follows:—Length over all, 585½ feet; breadth, 65 feet 2 inches; draught, 19 feet 6½ inches; stan-

dard displacement, 10,000 tons. Protection appears to be meager. According to a semi-official report, "while provision has been made for protection against gunfire, torpedo attack, and air bombs, as far as practicable, defensive power has been sacrificed for speed and offensive power. The new cruisers will be extremely vulnerable, relying largely on speed and handiness for their defense." In view of the sweeping claims which have been made on behalf of the electric drive, it is significant that these ships are to have geared turbine propulsion. The steam pressure is said to be 700 pounds, though this has yet to be confirmed. The designed speed is 33 knots. Ten 8-inch guns are mounted in two triple and two double turrets on the center line. There are also four 5-inch short-caliber anti-aircraft guns and six torpedo tubes. This is the heaviest armament carried by any existing cruiser of the "Treaty" class. Both ships are due for completion in August, 1929. Six later vessels were ordered last year, one from the Bethlehem Shipbuilding Corporation, one from the American Brown-Boveri Company, two from the Newport News Company, and one each from the Navy Yards at Puget Sound and Mare Island. They will closely resemble the *Pensacola* class, save that the armament has been reduced to nine 8-inch guns in triple turrets.

The only war vessel of any importance to be launched during the year was the mine-laying submarine *V-4*, which went afloat at the Portsmouth, New Hampshire, Navy Yard on November 10. This boat is 381 feet long over all, has a maximum breadth of 33 feet 7½ inches, and displaces 2,878 tons on the surface. She is the largest submarine which has been launched, so far, for any navy, her displacement exceeding that of *X-1* by 353 tons, and her length by 21 feet. Surface propulsion is effected by oil engines of 2,800 B.H.P., the speed being 15 knots. It is understood that she is armed with one 6-inch gun and four tubes, and carries sixty mines.

Japan

Two large cruisers were launched during the year, the *Myoko* at Yokosuka on April 16, and the *Nachi* at Kure on June 15. They are the first Japanese cruisers to be designed up to the Treaty limit of 10,000 tons. Two further units of the class, *Ashigara* and *Haguro*, are building respectively at Kobe and Nagasaki, and four more have been ordered. The *Nachi* is 630 feet long on the water line, the breadth being 57 feet. She is driven by geared turbines, and the designed speed is 33 knots. Although the armament has been reported as ten 8-inch guns, the actual number is probably eight or nine. No other reliable details of these ships have yet come to hand. The 7,100-ton cruisers *Kako* and *Furutaka*, which were completed in 1926, have already undergone large refits which have altered their appearance. According to Japanese Press reports, it was found necessary to strengthen their hulls after a short period of sea service. In spite of their moderate displacement, each ship mounts six 8-inch guns in single, lightly armored turrets, and the machinery develops 100,000 S.H.P. The combination of speed and gun power is remarkable, but it would be instructive to learn how these vessels behave in heavy weather. Two ships of similar displacement, speed, and armament, the *Kinugasa* and *Aoba*, were completed in 1927, but in their case some weight has been saved by pairing the big guns.

Another important ship that went into commission during the year is the aircraft carrier *Akagi*, first begun in 1920 as a battle-cruiser, and re-designed after the Washington Conference. Dimensions, length, 763 feet; breadth, 92 feet; displacement, 26,900 tons; geared turbines of 131,200 S.H.P. for 28½ knots. Armament: Ten 8-inch guns, four 4.7-inch and twelve 4.7-inch anti-aircraft. In appearance this ship resembles H.M.S. *Furious*. A second aircraft carrier, the *Kaga*, originally begun as a battleship, is approaching completion. She is 700 feet long, 100 feet broad, and has turbines of 91,000 S.H.P., giving a speed of 23 knots. Her armament is similar to that of the *Akagi*.

A number of first-class destroyers were launched during the year. They have a uniform displacement of 1,445 tons, a speed of 34 knots, and are armed with four 4.7-inch guns and six torpedo tubes. The newest boats, of which twenty-four are on order or projected, will displace 1,700 tons and be armed with six 4.7-inch guns. Several submarines were launched and others are under construction, the largest approaching 2,000 tons.

France

The launch of the *Suffren*, the third French cruiser of the "Treaty" type, took place at Brest on May 3, exactly twelve months after the keel had been laid. This is believed to constitute a record for speedy construction in France. The *Suffren* differs slightly from her predecessors, *Tourville* and *Duquesne*, the length overall having been reduced from 626½ feet to 607 feet, the breadth remaining at 63 feet, and the displacement at 10,000 tons. Like other ships of the class, she is equipped with Rateau turbines and Guyot boilers. The designed output is 130,000 S.H.P., and the speed 33 knots. She will have a radius of 5,000 miles at a speed of 15 knots. In this vessel the weight allotted to protection has been increased, in order to render the vitals safe from projectiles of medium caliber and air bombs. There are three screws, as against four in the earlier ships. The armament is eight 8-inch guns, with smaller weapons, and two catapults are provided for launching aircraft. The *Colbert*, a sister ship, was begun at Brest on June 12, and yet another is to be laid down early this year, following the recent passage of the 1927 Estimates, which had been held up by pressure of parliamentary business. Good progress is being made with the construction of the heavy flotilla leaders to which French naval opinion has become so partial. The *Bison*, *Guépard*, and *Lion* will shortly go afloat, three "improved *Guépards*" are building, and six more are about to be ordered. They are slightly enlarged versions of the *Chacal* class, an appreciation of which appeared in our columns on June 3 last. The displacement has been increased to 2,400 tons and the armament to five 5.5-inch guns, the speed remaining at 35½ knots. It deserves to be recorded that these large leaders have been thoroughly tested in long ocean cruises, in the course of which every variety of weather was encountered, and have proved themselves excellent sea boats. The same remark applies to the cruisers of the *Duguay-Trouin* class—which were so greatly admired when they visited Portsmouth last summer—and in somewhat less degree to the *Simoun* group of destroyers, which are rather overburdened with top hamper. Fifteen submarines of various types are now under construction and six projected. The majority are boats with a surface displacement of 1,570 tons, but included in the total is a submersible cruiser of 3,000 tons, recently begun at Cherbourg. Like the surface vessels, all French submarines completed in recent years have carried out long independent cruises, extending over thousands of miles, in every case with complete success. It is no exaggeration to say that every French naval vessel built since the war is capable of ocean service.

The aircraft carrier *Béarn*, converted from an unfinished battleship, hoisted the pennant in May. She is 576 feet in length, with a breadth of 89 feet, and displaces 21,800 tons. At high speeds—21 knots maximum—propulsion is effected by turbines of 24,000 S.H.P., but when the vessel is cruising or maneuvering, the two outer shafts are turned by reciprocating engines, which develop 15,000 I.H.P. Steam is taken from twelve small-tube boilers, burning oil. The full radius is 6,000 miles. The funnel and superstructure are sponsoned out from the hull, thus leaving the flight deck absolutely clear. Forty airplanes can be carried. The armament comprises eight 6.1-inch guns, fourteen light anti-aircraft pieces, and four torpedo tubes. An "aircraft tender," to be named Commandant Teste, was ordered in May from the Chantiers de la Gironde, Bordeaux. She is to have a displacement of 10,000 tons, a speed of 20 knots, and a main armament of six 5·5-inch guns. Judging from the plans, the accommodation for aircraft will be limited, and the value of this type is not very obvious.

Italy

Following the launch of the *Trieste* in October, 1926, her sister ship *Trento* was put afloat at Leghorn on October 4 last. These are the only two 10,000-ton cruisers that Italy has built up to now, and it is possible that no more will be laid down, since the ships of the new programme are to be of 5,300 tons only. The two *Trentos* are alone among cruisers designed under Treaty rules in being engined for a speed of 36 knots. The length overall is 642 feet, the breadth 67½ feet, and the mean draught 19 feet. Machinery: Parsons turbines with gearing, twelve Yarrow boilers working at 300 pounds pressure; output, 150,000 S.H.P., for a speed of 36 knots. As these ships mount the standard main armament of

eight 8-inch guns, besides sixteen 4-inch anti-aircraft guns, it is doubtful whether any considerable weight has been left over for protection, even when full allowance is made for the ingenuity of Italian naval constructors. The four cruisers now building are named as follows: *Bande Nere, Colleoni, Da Barbiano,* and *Da Giussano.* They will displace 5,300 tons, and be engined for a speed of at least 37 knots. It is understood that six or eight 6-inch guns will be mounted in pairs, though triple mountings may possibly be adopted.

The last two units—*Azio* and *Lepanto*—of a class of sloop-minelayers were launched during the year. These are vessels of 700 tons, with a speed of 15 knots. Of greater importance are the twelve big destroyers of the "improved *Mirabello*" class, all of which are now under construction. Displacement, 2,000 tons; length, 360 feet overall; speed, 38 knots; armament, six 4.7-inch and three smaller guns, six torpedo tubes. Eight smaller destroyers of the *Turbine* class were launched during 1927. They displace 1,155 tons and are designed for 36 knots. We learn, however, from the *Rivista Marittima* that this speed was exceeded by a substantial margin on the official trials. During a four-hour run the *Turbine* attained a mean of 38.9 knots, while the *Aquilone* averaged 39.5, and at one time actually touched 40.37. If the boats had their normal equipment on board at the time, these results reflect the highest credit on their builders and engineers. Four submarines of 1,390 tons were launched in the course of the year, and six boats of 850 tons were ordered.

Germany

The German Navy Estimates for 1928 included an appropriation for beginning a 10,000-ton armored vessel to replace one of the obsolete battleships, but this item has since been deleted by the Reichstag. The ship in question was reported to be oil engine driven and designed for the heaviest armament "compatible with Treaty restrictions." The cruiser *Königsberg* was launched at Wilhelmshaven on March 26—less than twelve months after being laid down—and a sister ship, *Karlsruhe,* at Kiel, on August 20. Although limited to 6,000 tons, the designers have contrived to produce a very formidable type of cruising ship. The hull is said to be abnormally light, owing to the employment of electric welding. Geared turbines propel the ship at high speed, 32 knots being the maximum, but at cruising speed she will run on her oil engines, which are capable of driving her at 14½ knots. The total output of the machinery is 65,000 H.P. Nine 6-inch guns are mounted in triple turrets, one of which is on the forecastle, the other two aft in echelon. The advantage of this arrangement is that, by yawing a few points, six guns could be trained on a target ahead, while the stern fire is from six guns and the broadside from nine. Two further cruisers of this class are now under construction. The six new destroyers, two of which were launched at Wilhelmshaven on October 12, displace 800 tons and are engined for 32 knots.

Spain

The two fine cruisers, *Principe Alfonso* and *Almirante Cervera*—7,850 tons, 33 knots, eight 6-inch guns—have been completed. The trials were very successful, the *Principe Alfonso* attaining a maximum of 34.7 knots with 83,000 S.H.P. A third vessel of this class, Miguel de Cervantes, is now under construction at Ferrol. The design of these ships was prepared by the late Sir Philip Watts. Three large flotilla leaders and several submarines are in hand at Cartagena. In view of misleading statements in the French Press, to the effect that "German capital and engineering genius" were the factors responsible for the progress of the Spanish Navy, a letter has been circulated by the Advisory Committee of the Sociedad Espanola de Construccion Naval, the Spanish company that has built all the important ships for the Spanish Navy during the last eighteen years: "All these ships have been built in the Government arsenals at Ferrol and Cartagena, and no German capital or engineering genius has contributed in any way to the very successful results which they have obtained. The only foreign capital invested in that company was subscribed by three British firms, who have also acted as technical guarantors —W. G. Armstrong, Whitworth and Company, John Brown and Company, and Vickers Ltd. These firms, between them, have supplied all the drawings and technical information required for the construction of the vessels in question."

NOTES ON INTERNATIONAL AFFAIRS

FROM JANUARY 1 TO FEBRUARY 1

PREPARED BY PROFESSOR ALLAN WESTCOTT, U. S. NAVAL ACADEMY

PAN-AMERICAN CONFERENCE

OPENING OF CONFERENCE.—The evident purpose of the United States Government in preparing for the Sixth Pan-American Conference at Havana was to make every effort to avoid friction or domination and to secure the good will of the Latin American States. A strong delegation was sent, including former Secretary of State Hughes as chairman, Mr. James Brown Scott, Judge Morgan J. O'Brien, Ambassador Morrow, former Ambassador Fletcher and Mr. Noble B. Judah, our new Ambassador to Cuba. Mr. Leo Rowe, Director General of the Pan-American Union, was included in the delegation in order that he might have an official place in the Conference. President Coolidge attended the opening of the Conference, arriving January 15 on the U.S.S. *Texas* and delivering an address at the formal opening next day. Mr. Hughes was made Chairman of the Governing Committee of the Conference, but declined the chairmanship of the important Committee on the Reorganization of the Pan-American Union in favor of Dr. Pueyrredon, head of the Argentine delegation. Dr. Guerrero of Salvador was chosen head of the Committee on Codification of International Law. It was voted that committee sessions should be open, though in accordance with previous practice they could be closed by a two-thirds vote of the members.

HUGHES DEFENDS AMERICAN POLICY.—The speech of Mr. Hughes at the dinner of the American colony on January 21 was a vigorous defense of our recent policy in the Caribbean, though, like President Coolidge's address, it covered familiar ground. Mr. Hughes said that Pan-Americanism rested on four pillars. The first, he said, was independence. "It is the firm policy of the United States to respect the territorial integrity of the American republics. We have no policy of aggression. We wish for all of them, not simply those great in area and population and wealth, but for everyone, to the very smallest, strength and not weakness.

"What a fatuous idea it would be to think that the United States desired any of these states should be weak, or the prey of disorder. There is no promise for the United States in that. We do not wish their territory. We have troubles enough at home and without seeking responsibilities abroad. The rights we assert for ourselves we accord to yours.

"Nothing could be happier for the United States than that all the countries in the region of the Caribbean should be strong, self sufficient, fulfilling their destiny, settling their problems, with peace at home and the fulfilment of their obligations abroad. It is in the strength of these powers, as equal and responsible states, and not in the weakness of any, that lies our confidence for future tranquility and the mutual benefits of intercourse."

The second pillar he declared, was stability. In connection with this, Mr. Hughes pointed out that after aiding Santo Domingo to establish a firm government the United States withdrew, and that "we would leave Haiti at any time that we had reasonable expectations of stability." He continued:

"We are, at this moment, in Nicaragua, but what we are doing there and the com-

mitments we have made are at the request of both parties and in the interest of peace and order and a fair election. We have no desire to stay. We wish Nicaragua to be strong, prosperous and independent. We entered to meet an imperative but temporary exigency, and we shall retire as soon as it is possible."

The third and fourth pillars were mutual good will and coöperation, the latter meaning not domination by one state or group, but "coöperation of equals for common advantage."

REORGANIZATION OF THE UNION.—The Committee on the Reorganization of the Union engaged in an effort to incorporate into a treaty the various proposals made for changing the make-up of the Union. Among the most interesting amendments suggested were those of the Mexican delegation proposing that the chairmanship of the governing board should be held, not as at present by the U. S. Secretary of State continuously, but by delegates of each nation in alphabetical succession; that the director-general should change similarly; and that the members of the board should not be diplomatic representatives in Washington. All this was aimed to weaken American influence in the board. The only action taken was to permit nations to send special delegates if they preferred. Speaking on the subject, Mr. Hughes declared that the chairman had little special influence, that the delegates always consulted their governments before important decisions, that the director-general really did all the work, and that there was an advantage of continuity in having a permanent director-general and a governing board always on hand.

Another suggestion made by the chairman of the committee, Dr. Pueyrredon of Argentina, was that something should be said in the proposed treaty about reduction of tariff barriers between the American states, and he intimated that Argentina would not approve a reorganization of the Union that did not contain such a clause. He said the United States' high tariff caused more ill feeling in some parts of South America than our policy in Nicaragua.

On the whole, it appeared unlikely that any progress would be made toward giving the Union a political status, especially in the field of mediation and conciliation, making it a kind of American League. This would require solving the problem of the place to be given to large and small states; and the United States, as well as some of the larger South American countries, were opposed to the whole idea, preferring to let the Union remain an innocuous society for conferences, publication of reports, and coöperation in non-political spheres.

AIR ROUTES REGULATION.—In the Committee on Communication Problems difficulty arose over an amendment proposed by the United States to the treaty for the regulation of commercial aircraft and communications. The amendment proposed that any two governments might arrange between themselves for designation of air routes over their territory, and was designed to permit arrangements with Panama and with Cuba to prevent commercial aircraft from flying over portions of Panama and Cuba adjacent to the Isthmian Canal and Guantanamo. The objections of Mexico and Colombia were later obviated by explanation that there was no intention to exclude commercial aircraft from all parts of Panama. Mexico suggested amendments to the effect that in time of peace no nation could lay an embargo on the sale of aircraft to another nation, and that any nation could exclude commercial aircraft of another country from parts of her territory.

CODIFICATION OF INTERNATIONAL LAW.—Work in the Committee on Codification of International Law made some progress, though the tendency was often shown to suggest new principles rather than formulate those already established. Thus one chapter of the proposed code contained the clause that "no state may intervene in the internal affairs of another," to which the United States objected on the ground that as phrased it ran counter to established practice and constituted a new rule. At the suggestion of Dr. Ferrera of Cuba, the whole chapter in which this clause appeared was sent back to the sub-committee for elimination of clauses too vague or too sweeping to secure acceptance.

Among the matters to come before the committee later were draft proposals re-

garding the conduct of neutral states as regards revolutionary movements or rebellions in another state, and draft proposals prepared by the jurists' conference in Rio de Janeiro last April covering maritime neutrality. These latter contained sweeping changes, having slight chance of adoption.

MARITIME NEUTRALITY PROPOSALS.—The provisions in the draft treaty recommended for maritime neutrality are sweeping and designed to alter profoundly conditions on the high seas during war time, besides being aimed at rendering the prosecution of hostilities as difficult as possible.

The first article says that other States in case of hostilities "shall consider it a duty to remain neutral," although ready to offer good offices.

While the right of search on high seas is sanctioned, the provision is included that ships cannot be attacked except if, after being stopped, they fail to observe instructions given. Submarines are specifically mentioned as included in this article.

The draft says that only State acts of assistance to belligerents shall be a violation of neutrality, leaving to private individuals freedom in their commercial activities.

It specifies, however, that neutral States are obliged to refuse to belligerents credits or loans and are forbidden to deliver to the belligerents directly or indirectly, war materials. Despite this last provision, a further article specifies that a neutral State is "not bound . . . . to prevent in its ports or waters the export or transit" of war material.

Numerous provisions are included in the draft concerning the activities allowed to belligerent ships in neutral waters. They may not use these as bases of naval operations, nor remain in a neutral harbor more than twenty-four hours. Not more than three belligerent warships may crowd into one neutral harbor at one time, nor may one man-of-war weigh anchor from a non-belligerent port less than twenty-four hours after an enemy one has left it.

The Pan-American Union in Washington would be charged under the draft convention with the appointment "in agreement with the Governments interested . . . . of commissions to observe how the belligerents conform to the laws and usages of war."

In addition, among the myriads of other provisions in the draft, the Governing Board of the Union would have to meet immediately upon the declaration of war to suggest fitting measures to the American republics "to insure respect for the rest of the neutrals and particularly the freedom of commerce and navigation which exists in time of peace."

OUR CARIBBEAN POLICY (From an editorial in the Baltimore *Sun*, January 22).—Although the time may not yet be here to say so flatly, our delegation to Havana knows very well that we have a Caribbean policy distinct from that directed toward the ten republics of continental South America. Nearly five years ago, while Secretary of State, Mr. Hughes stated that "so far as the region of the Caribbean Sea is concerned it may be said that if we had no Monroe Doctrine we should have to create one. The inference of special interests, rights and obligations in this territory is plain. And President Coolidge said in New York last April that "toward the governments of countries which we have recognized this side of the Panama Canal we feel a moral responsibility that does not attach to other nations."

For most of the Caribbean countries much of the formal program of the Havana conference is superfluous. The United States already dominates their trade, directs their finance, and to an increasing extent determines their cultural development. With or without Pan-American conferences these bonds will grow increasingly closer. Willingly or unwillingly, subject or independent, these little countries are our satellites.

But South America is outside our orbit and, judging by the development of several of her units during the post-war years, will so remain. So also should Mexico, with whom we are now happily making earnest effort for good relationships upon a basis of mutual toleration and respect.

Desirable in any case, the good will of South America becomes essential as the obvious lines of our national expansion bring us to a position of domination in the Caribbean basin. Our hegemony there will be peacefully accepted or fiercely resented, according to whether or not it is established with the tacit approval of South America and Mexico, whose cultural and sentimental

interests in the territory go far to balance our greater material concern.

It is the knowledge of developing American policy, of which events in Nicaragua are but a symptom, that has led to all the feeling of skepticism and mistrust which Latin America has voiced toward the Havana conference. Such apprehensions would be increased by sedulously clinging to the letter of an innocuous agenda. Only in the degree that we welcome as from equals and as of right, inquiry into and criticism of our actions in the Caribbean, will the success of Havana prove more enduring than the garlands hung for President Coolidge's visit.

PROPOSED LATIN-AMERICAN POLICY.—In a special supplement (No. 4) of the Foreign Policy Association Information Service, Dr. R. L. Buell, Research Director of the Association, proposes certain changes in United States policy in the Caribbean. In a review of our past relations in this region, he finds that our "anti-revolution policy"—of refusing to recognize governments set up by force—has involved us in constant difficulties, and even led to intervention, as at present in Nicaragua. Furthermore, our policy of interference for protection of American and foreign property or to force settlement of claims has aroused resentment in Latin America. To remedy these difficulties he makes three proposals:

(1) A change in recognition policy so as to recognize *de facto* governments.
(2) The establishment of permanent claims tribunals by the United States and each of the Latin American countries, having annual or biennial sessions.
(3) A Coolidge doctrine stating that the United States will not intervene in any country without consulting the Governing Board of the Pan-American Union.

The tribunals he suggests would be composed of two judges appointed by the two countries concerned, and a third, preferably non-American, to be selected by lot from a standing panel of names chosen at each Pan-American Conference. There would be about twenty of these tribunals, one for each of the countries of Latin America. Such tribunals would be less "packed" against the United States than would a court, such as recently suggested by the American Institute of International Law, composed of judges appointed by each of the New World countries.

As regards consultation with the Governing Board of the Pan-American Union before intervention, this would be putting the Union into politics with a vengeance. However, the writer points out that the United States could disregard the judgment of the Union if it desired. Otherwise there would be no intervention.

NICARAGUA

SANDINO FORCES SCATTERED.—At the close of January the forces of the rebel leader Sandino, who since last May has been making trouble for the Marines in Nicaragua, were reported to have abandoned their mountain stronghold of El Chipote and to have fled either southward or across the Honduras frontier.

On December 30 a force of 200 United States Marines and an equal number of the Nicaragua National Guard, advancing to occupy the town of Quilali, Sandino's so-called capital in northern Nicaragua about twenty miles southwest of Chipote, were ambushed in a narrow pass. Five marines were killed and three wounded, and one was killed and two wounded of the National Guard. The fighting lasted nearly two hours, after which the marines pushed ahead and occupied Quilali. A reinforcement sent three days later lost one killed and five wounded. Upon news of these casualties additional marine forces were ordered to Nicaragua to the number of about 1,400, bringing the total in the country to 2,800, with General Logan Feland again in command. An aircraft attack on Chipote by a squadron under Major Rowell on January 14 was reported to have killed at least forty; and this, with the shortage of food owing to the occupation of towns by the marines, seems to have led to the dispersion of the band.

According to figures issued by the U. S. State Department, there were twelve marines killed and six wounded in Nicaragua in the fighting between May 15 and the attack near Quilali.

SUPERVISION OF ELECTIONS.—Difficulties have arisen at Managua over the action to be taken by the Nicaraguan Congress on the bill which would put into effect United States supervision of the presidential election in autumn of this year. The necessity

for its passage lies in the fact that control of elections rests with the Congress rather than the President. At the close of January the bill had passed the Liberal Senate, but had been held up and modified in the Conservative lower house, for while the Conservatives have all along favored American intervention they apparently fear a Liberal victory for General Moncada if the elections are supervised. President Coolidge has already appointed General Frank R. McCoy, U.S.A., to take charge of the elections as President of the Central Electoral Board, and if the bill passes the Nicaraguan Congress there will be an American member on each local board.

American supervision of the elections arises out of the agreements made at the time of the settlement arranged by Colonel Stimson last May. Before laying down his arms at the time, General Moncada called for a written statement to the effect that there would be American supervision of the elections, and further that United States forces would remain in Nicaragua to disarm forcibly all Nicaraguan troops refusing to surrender of their own accord. Hence the continued presence of marines in the country, and the operations against Sandino.

TREATY NEGOTIATIONS WITH FRANCE

ANTI-WAR TREATY SHELVED.—The French note published in the press on January 23, and pointing out the obligations of France to the League of Nations as an obstacle to the anti-war treaty proposals of the American State Department, apparently ended, at least for the present, the prospects of further consideration of such a treaty.

Foreign Minister Briand's reply was an interesting document, worked out after consultation with Premier Poincaré and the rest of the French Cabinet and also after conversations, on January 9, with the British Ambassador, Lord Crewe. It was in answer to previous communications from Secretary Kellogg which had proposed: (1) Separation of the general "anti-war" agreement from the Franco-American Arbitration Treaty; (2) extension of the anti-war pact into a multilateral agreement which should be worked out together by the United States, France, Great Britain, Germany, Italy, and Japan.

Premier Briand stated that the question whether the treaty should be signed first by France and the United States and left open to the others, or whether it should be negotiated and signed by all together, was a matter merely of procedure. But the great difficulty in the way of such an agreement, and the reason why France must limit it to "aggressive" war as between themselves, was that France and the other nations mentioned were bound by the League Covenant, as well as the Locarno and other treaties, to "wars of assistance" under certain conditions, and that no agreement could be made with the United States which disregarded those obligations. The gist of M. Briand's reply was in the last paragraph of his note, as follows:

"It cannot have been overlooked by the United States that the great majority of world powers are making, for the organization and strengthening of peace, common efforts which they are following out within the bonds of the League of Nations. They are already bound one to the other by a compact creating for each other reciprocal obligations, both by accords such as those concluded at Locarno in October, 1925, and by international conventions relating to guarantees of neutrality—and all of them are engagements which impose upon them duties they cannot break."

RENEWAL OF ARBITRATION TREATY.—In spite of the dubious outcome of the negotiations over Foreign Minister Briand's proposal to abolish war between France and the United States, there appeared no obstacle to the renewal of the Root Arbitration Treaty of 1908, with changes extending its scope. French experts, however, called attention to the fact that the Bryan Treaty of Arbitration, negotiated with France in September, 1914, is also still in full force, since after running five years it was to continue indefinitely unless denounced after a year's notice, and that this agreement is in some ways more far-reaching than the other. It provides that all questions, "whatever they be," shall be submitted to an international commission for study and report, prior to which the contracting parties pledge themselves not to resort to force.

EUROPE

PRESIDENT COSGRAVE IN AMERICA.—On January 21, William T. Cosgrave, President

of the Irish Free State, arrived in New York for a brief American tour. After a call on Mayor Walker, President Cosgrave went directly to Chicago where he spent several days. He was then in Washington, where he was given a dinner by the Canadian Minister, Vincent Massey, and before sailing on February 3 he also paid a brief visit to Ottawa.

SOVIET OPPOSITION EXILED.—As a result of their attacks on the Stalin control in Russia, the whole group of opposition leaders in the Communist Party were banished in the middle of January to remote districts of Russia, the distance from Moscow depending on the degree of their offenses. Trotsky was banished to the Chinese-Turkestan frontier. Reports of military disturbances at the time were unfounded, but the Soviets appear to be facing a genuine economic crisis, due to lack of foreign credits, and inability to increase production and distribution of manufactured goods to meet the demands of the peasants resulting from three successive good harvests. Politically the government is not threatened, and general conditions are better than a year ago.

ITALIAN ARMS FOR HUNGARY.—Early in January five freight cars loaded with machine guns, shipped from an Italian factory as "agricultural instruments" for Poland but apparently destined for Hungary, were found at a railway station on the Austro-Hungarian frontier. Since the shipment was in flagrant violation of the Treaty of Trianon, all the Little Entente powers were much disturbed, and France appeared eager to have the matter made a subject for League investigation.

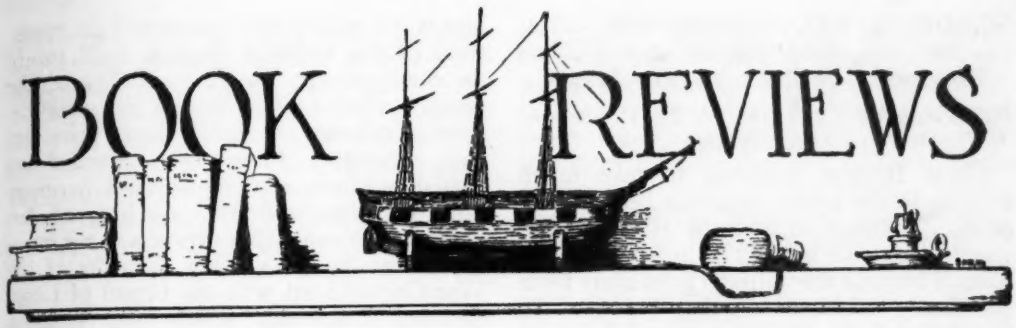
FAR EAST

JAPANESE ELECTIONS.—On January 21 Premier Tanaka dissolved the Japanese parliament, after a vigorous speech in which he defended the policy of his ministry. The new elections, scheduled for February 20, will be under the recent universal manhood suffrage laws which increase the number of voters from 3,000,000 to 9,600,000. The opposition planned during the campaign to base their attacks chiefly on the government's foreign policy, on the ground that the Shantung expedition and other military measures are mainly responsible for the growing anti-Japanese sentiment in China.

LULL IN CHINESE WAR.—The winter season in China was marked by a let-up in hostilities between Nationalists and Northerners, during which both factions occupied themselves with conferences and government reorganization. At Peking there was an important New Year's Conference during the fourth week of January attended by Chang Tso-lin, the Peking Cabinet, and the Northern generals, at which, according to reports, an effort was made to wrest civil authority from the war lords of Shantung and Chili. If this effort for separation of civil and military rule had any real success it would mean perhaps merely a change of masters, for Chang Tso-lin would control the civil ministers at Peking.

From Peking came the news also that A. S. F. Edwards, the English Inspector General of Chinese Customs, had obtained permission from Chang Tso-lin to confer with Southern officials at Shantung over customs reform, the plan being apparently to grant the Southern authorities a share of the customs receipts and other concessions while retaining the seat of administration at Peking.

From Nanking, however, came the announcement that T. V. Soong, the new Finance Minister would not only demand 70 per cent of the customs revenue, but would also refuse to recognize the right of other authorities to control customs in the sixteen out of twenty-one provinces under nationalist rule. Among other steps taken by Soong to bolster Nationalist finances was a new tax of $1 Mexican on every ten gallons of gasolene or kerosene imported. The oil companies compromised on a payment of sixty cents.



BOOK DEPARTMENT

Save money by placing your orders for all books, whether professional or not, with the Institute Book Department, which will supply any obtainable naval, professional or scientific book, and not only save you money but will save the purchaser a great deal of inconvenience by having one source of supply. Address Secretary-Treasurer, U. S. Naval Institute, Annapolis, Maryland.

ROOSEVELT AND THE CARIBBEAN by Howard C. Hill, Ph.D. The University of Chicago. The University of Chicago Press, Chicago, Illinois. Price $2.50.

The very title of this book cannot fail to kindle a spark of interest in the heart of the naval service. Indeed this preliminary spark is never in danger of being snuffed out, for, as one reads on, it is fanned into the flame of all consuming interest.

The Navy sails through many of the pages and old friends and old ships are brought before the reader again, their names now indelibly engraved in history.

The three major acts of Roosevelt in connection with the Caribbean are treated in separate chapters: "The Taking of Panama," "Cuba and Intervention," and "The Venezuela Crisis." To have brought together into one volume accurate accounts of these three events is enough to make publication worthwhile. Mr. Hill's first two chapters on, "The Passing of Our National Isolation" and "The Rise of Roosevelt" are excellent and set the stage in a masterly fashion for the events which follow. The book closes with "The Collection of Debts," "Mediation in Central America," and "Rooseveltian Imperialism."

Perhaps the author's most interesting point is the explosion of the commonly accepted theory that Germany was at the bottom of the Venezuela crisis. Mr. Hill lays the blame at England's door by quoting from the private correspondence of the German authorities as well as from official dispatches. To Bülow's letter of December 12, 1902, mentioning the desire of the German government to go "hand in hand unreservedly with the English," the Kaiser appended the remark "We shall participate in the English program. We will allow our flag to follow the lead of the British." Bülow is quoted as making the following marginal notation on a despatch from Holleben four days later: "His majesty will on no account go a single step further toward Venezuela than England and will take no step without England."

The book is written with meticulous care as to the accuracy of facts and each important statement is substantiated by its source of information. The author's evident fairness can in no way brand him as a "Roosevelt disciple," for blame and credit are alike dispassionately laid where they are due. The tremendous amount of research necessary to produce this volume is clearly shown by the large and carefully arranged bibliography that is published as a part of the work.

In many spots, *Roosevelt and the Caribbean* furnishes an excellent picture of the Monroe Doctrine in actual operation and helps to give a better and more sympathetic understanding of our policy in the Caribbean and the countries which border it. No thoughtful American can fail to be interested by this book and the wonder is that the author, after such extensive research could have confined himself to the remarkably small space of 213 pages.

A. S. W.

SOLDIERS AND STATESMEN, 1914-1918. By Field Marshal Sir William Robertson. Scribner. 1926. $12.00.

REVIEWED BY CAPTAIN W. D. PULESTON, *U. S. Navy*

Great Britain continues to take much interest in the proper relations between the civilian government and the Higher Command in time of war. This interest is very natural because she suffered grievously from the faulty relations existing between the Cabinet and the Higher Command during the World War. With characteristic determination, the British people have commenced to study this problem, and whether they completely solve it or not, it can be safely ventured that the next war will find them with a greatly improved system for exercising governmental control over their military forces.

To books such as *Soldiers and Statesmen, 1914-1918* by Field Marshal Sir William Robertson, much of the sustained British interest in this problem of their higher command can be attributed. In his book, Robertson deliberately and positively states the soldier's side of the problem. He presents the case temperately but vigorously, and while he does not conceal his sympathy for the military, he has written with restraint and is apparently endeavoring to give an impartial statement of the problem.

In 1888, after serving two years as an enlisted man, Robertson was commissioned a lieutenant in the Third Dragoon Guards. As a junior officer he served extensively in India, mainly in the Intelligence Branch of the General Staff. In the South African War he served at Army Headquarters; from 1910 to 1913 he was commandant of the Army Staff College; in 1913 and 1914 he was director of military training in the War Office. He crossed the Channel with the British Expeditionary Force to France in August, 1914, and as quartermaster general, one of his first tasks was to prepare to change the line of communication from the Channel Ports to the Bay of Biscay. His efficiency as quartermaster general led to his appointment as chief of the General Staff to General Sir John French. In the reorganization of the War Office in December, 1915, Robertson was selected to be chief of the Imperial General Staff. Before accepting this position he stated in a memorandum to Kitchener certain principles which would have to control the operations of the Imperial General Staff before he would accept the responsibility of the position offered him. With a few modifications Kitchener accepted these principles and thereafter these two distinguished British soldiers worked in close harmony until Kitchener's death. As long as Asquith was Premier, Robertson was not interfered with by the civilian members of the War Council; but with the advent of Lloyd George, Robertson states the situation changed and he was overruled repeatedly.

With his experience and training, Robertson's qualifications for presenting the military side of this important question are manifest. The style of his narrative is blunt and straightforward and there is abundant evidence that he is laboring to give an impartial account of events. He served as chief of the Imperial General Staff from December, 1915, until February, 1918, when he was relieved by General Sir Henry Wilson. Robertson's only personal grievance was his relief. He believed that he was superseded because of his opposition to the many "side-shows" and to "unified command on the Western Front." He was frankly disappointed at being removed from his position, and this has perhaps somewhat influenced his story, but in the main he has based his opinions on unassailable facts.

In his discussion of events he commences with the genesis of the British Expeditionary Forces which concludes with a brief but vivid description of the vague last minute directions given General French by the British Cabinet. Then he proceeds to describe the cumbersome governmental machinery for directing the war and its bad effect on Sir John French's army in 1914. In separate chapters he treats of the Dardanelles Expedition, the Mesopotamian Campaign, the Saloniki Expedition, and the Palestine Campaign, with particular reference to their effect on the situation in the main theater of the war in France, and with their reactions on the governmental machine in London. The discussions on these four big "side-shows," the Dardanelles, Mesopotamia, Saloniki, and Palestine, are perhaps the most interesting parts of the book. He produces evidence which shows conclusively the reluctance of the British Government to face the inevitable losses necessary to defeat Germany. It is illuminating to recall the

chauvinistic speeches being made in England by the civilian members of this same government as they went about the country preaching the necessity of the absolute overthrow of German despotism, and then to discover Lloyd George, the boldest of them on the stump, flinching in the Cabinet from the losses necessary to put their promises to the voters into effect. This surprising contrast between words and deeds shows the necessity for future statesmen of Great Britain to learn more of the nature and conduct of war. It is safe to say that the British Government will continue to be responsible to Parliament. It is also a fair prediction that England will again be involved in another world war, and it is doubtful if the British people will be as patient and forgiving with their government's conduct of war in the future as they have been in the past.

Many of the difficulties of the British control of its military forces arose when the crown was deprived of its authority over the armed forces and this authority given to the Cabinet, responsible to Parliament. The first Pitt succeeded in making this cumbersome system work in war time. He was assisted by the inefficiency of his enemies and by his own commanding personality which dominated his cabinet. He insisted that he would not be responsible for military operations unless he had the entire control of the armed forces. Pitt was in effect an absolute king as far as the Cabinet was concerned and he had the good sense to be guided in the operation of his military forces by the advice of Army and Navy officers in whom he had confidence. His method is the best method for a cabinet to make war.

While on the whole Robertson makes a good case for the soldiers something must be said for the statesmen. Although they had allowed England to go unprepared into a war which imperiled her very existence, British statesmen had been able in every crisis preceding the World War to produce military experts who would give them the advice they wished for political reasons to follow. After the South African War English public opinion was prepared for drastic changes in its military system. Some observers believed that England was prepared to adopt universal service at that time. Certain reforms were introduced into the British Army which gave the British people a feeling of security. Later Lord Roberts in his retirement realized more clearly the strength of Germany and endeavored to get the government to introduce universal service into Great Britain. His efforts were in a large measure defeated by the opinions of another distinguished Army officer, General Sir Ian Hamilton, who sincerely believed that universal service would be fatal to Great Britain. Hamilton's opinions were used by the Liberal Cabinet to defeat the proposal for universal service in Great Britain. So again, responsible Army opinion in England was as much at fault as civilian opinion.

In truth, few people in England realized the tremendous power of the German military establishment prior to 1914 and consequently failed to realize the obligations assumed by Great Britain when she joined the Dual Alliance. Those in England who were convinced of the necessity of joining the Triple Entente believed that England's contribution to a war in Europe would be its fleet plus the British Expeditionary Force of approximately 100,000 men. Some in responsible places in the British Government thought there would be no more wars. So some excuse can be urged for statesmen immersed in domestic affairs when even responsible military advisers scarcely sensed their growing peril and when public opinion was more interested in woman suffrage than in preparation for war.

The most serious reproach that Robertson brings against the British Government in its conduct of the war was that after the Dardanelles disaster, after the surrender at Kut-el-Amara, after the Saloniki Expedition, as late as the fall of 1917, the government continued to send reënforcements to Allenby in Palestine when Haig in France knew that Hindenburg was coming with all the force at his command in a last effort to break the Allied line in France. In the face of repeated warning by Robertson and Haig, Lloyd George insisted upon reënforcing Allenby's Palestine Expedition at the expense of the Western Front.

At the same time that Lloyd George was dispatching reënforcements to Palestine he was withholding them from Haig on the Western Front lest Haig employ them in an offensive. Lloyd George did not dare order Haig to remain on the defensive, yet he was afraid to trust these reënforcements to Haig, so he kept them in England. In a word,

Lloyd George personally controlled the Reserves of the British Army, and only the disaster to Gough's army in March, 1918, caused him to send the Reserves to France, and forced him at the same time to recall from Allenby two of the divisions he had sent to Palestine.

It will surprise many naval officers to learn that as late as January, 1916, the Admiralty considered that the Germans could land 160,000 men on the east coast of England, and in consequence, General French, commanding the Home Defenses, insisted on a field force of 230,000 men in England; in addition, garrisons for defended points, vulnerable points and anti-aircraft defenses used up 220,000 men. Even in August, 1916, after Jutland, and while the battles of Verdun and the Somme were taxing the German resources, the Admiralty remained of the same opinion, and until the summer of 1917 the Defense Forces in England and Ireland approximated 500,000 men. At the end of 1917, the increased naval resources enabled the Admiralty to reduce the estimated number the Germans could land to 70,000; this in turn enabled the Army to disband four of the eight Territorial divisions in England and release 40,000 men for the army in France. Many of these men retained at home were not considered physically fit for the field army in France.

Toward the end of the second volume, Robertson asks an interesting question, as follows: "How it came about in face of so much mismanagement that we emerged from the war victorious and not defeated?" He gives an answer that is satisfactory to himself and to Great Britain. It is doubtful, however, whether his answer will be accepted by unbiased military students, many of whom consider the intervention of the United States as the decisive factor in the war. And this intervention was produced by causes whose roots lie so deep that they defy brief analysis.

Robertson makes a strong attack on the so-called unity of command on the Western Front, and he reveals a curious inconsistency on the part of Lloyd George who forced unity of command on Haig and then when Foch began to exercise this command over the British Divisions, Lloyd George offered to excuse Haig from carrying out one of Foch's very important orders. To Haig's credit it may be stated that he executed Foch's order faithfully and loyally, while Lloyd George was willing to leave Foch in the lurch.

One of the admirable characteristics of the British people is their ability to suffer adversity. Their government allowed them to drift blindly and unprepared into a World War. The same leaders who had denied the possibility of a war blundered daily in the management of the war, and when the finest blood of England paid the penalty, the survivors promptly forgave their derelict government. But apparently the people of England do not propose to pay such a penalty in the future. Her soldiers and her statesmen are submitting their cases to British public opinion in the effort to justify their various actions. From these contradictory briefs British opinion will crystallize and find a solution of the problem which confronts an imperial democracy waging war. Already they have established an Imperial War College, to which their soldiers, sailors, aviators, and statesmen will go. In addition, in London University a course on war is being given to students, some of whom in the future will be leaders in the British Government.

Lest the United States feel superior, it should recall that since the war it has done nothing to bring the statesmen, soldiers and sailors of our country together in a study of the future foreign policies of our own country. And while our Constitution provides in the Presidency, a much more efficient instrument for waging war than the British Cabinet, still unless there is a sympathetic understanding between the civilian heads of our government and their military servants, in some future day the United States will unquestionably pay the same penalty that was exacted from Great Britain in the World War.

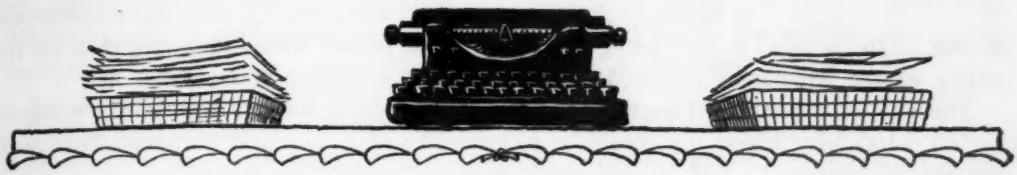
Underwood and Underwood, New York

Distinguished Naval Academy Graduates in Civil Life

Frank J. Sprague

MR. SPRAGUE was born in 1857; graduated from the Naval Academy in 1878. While an ensign, served as a member of jury of awards on electrical apparatus, Crystal Palace Exposition, London, 1882. Resigned from the service in 1883 to devote attention to electrical work. In 1884 founded Sprague Electric Railway and Motor Company which, using his constant speed electric motor, was the first to engage in manufacture and introduction of industrial electric motors; equipped first modern trolley railway in U. S. at Richmond in 1887; inaugurated high speed electric elevators; invented multiple unit system train control; engaged for years in promoting underground rapid transit. He is now president Sprague Development Corporation, Sprague Safety Control and Signal Corporation, consulting engineer Sprague and General Electric Co.; member Terminal Electrical Commission, N.Y.C., and H.R.R.R. As consulting engineer of S.P. Co. made studies for electrification of Sierra Nevada System of that railway; selected member U. S. Naval Consulting Board by Am. Inst. E.E. and Inventors Guild. During World War Mr. Sprague was engaged in development of fuses and air and depth bombs. Member and past president Am. Inst. of E.E., New York Electric Society, Am. Inst. Consulting Engineers and Inventors Guild; member Am. Soc. C.E., N.E. Soc., Ye Old Settlers, Inst. Elec. Engrs. and Inst. Civil Engrs.; Hon. Member Franklin Inst. and Nat. Elec. Light Assn.; Asso. Member Soc. Naval Architects and Marine Engrs. Awarded gold medal Paris Expn. 1889, for Elec. Ry. Development; Elliott Cresson medal, Franklin Institute, 1904, for multi-unit system; grand prize for "invention and development in Elec. Rys.," St. Louis Expn., 1904; Edison gold medal for "meritorious achievement in electrical science, engineering and art," 1910; Franklin medal, 1921, "for fundamental inventions and achievements in Elec. Engineering"; D. Eng. Stevens, 1921; D. Sc., Columbia, 1922; LL.D., U. of Pa., 1924. Author of various scientific papers on electricity.

SECRETARY'S NOTES



The February issue of the PROCEEDINGS is a real tribute to the retiring Secretary-Treasurer, Captain H. A. Baldridge, U. S. Navy. It visualizes the untiring effort, enthusiasm and vision he has given to the PROCEEDINGS and is an accomplishment worthy of any magazine. Due to his investigations in the publishing field, the PROCEEDINGS have been brought to a standard that has brought forth general praise from its readers and from those who advertise in its issues. The incoming Secretary-Treasurer only hopes he will be able to keep the interest already aroused. He invites the readers to coöperate as in the past.

Progress of the Cruise

We unearthed some interesting pictures of the battleships in Chilean waters and, although the cruise had progressed to Callao, Peru, in the last issue, we feel it not out of place to "walk back" in order to publish them. Punta Arenas (Sandy Point) is the southernmost city on the mainland of the Americas. The view of the fleet standing into this port will probably never be had again. The Panama Canal has deflected most of the traffic from this historic route. Very few of us will ever again have the opportunity (?) of seeing the grandeur of the Straits or of taking the ship around Cape Froward.

The picture showing the fleet being reviewed by the President of Chile is unusual, too. Manning the yards has passed out of fashion, with the passing of the "days of sail."

Who will ever forget the bull-fight at Lima, Peru? Out of consideration for their guests, the usual preliminaries of tiring the bull by the goring of decrepit horses, were dispensed with. This made the matador's task particularly hazardous with the result that two were carried from the ring very seriously injured. We learned that bull-fighting was not child's play. But even so, the irrepressible bluejackets insisted on jumping into the ring before the bull was killed in order to gather souvenirs! Most of us went but few, if any, went twice. There was no evidence that the bull-fight might supplant baseball.

The trip up the Oroya railroad gave those who took it another thrill. The construction of this road, which seems to leap from sea level to the snow-clad peaks of the Andes, was an engineering feat. And at that time, 1908, it was not unusual to find a playful boulder sitting in the middle of the track. Those who made the trip were quite content to get back on board ship.

The Art of War 500 B.C. A.D. 1927

"The merely brave man is prone to fight recklessly; and he who fights recklessly, without any perception of what is expedient, must be condemned." Sun-Tsu, about 500 B.C.

The shade of Sun-Tsu, if it happened to be hovering over Nanking in March, 1927 (See January PROCEEDINGS), must have nodded approval at the action of that young American naval officer who was responsible for the safety of the Americans gathered at the American consulate in Nanking.

The city in a panic and over-run by pillaging soldiers, murder and looting going on on all sides; fifty inside the consulate to protect and a hundred scattered throughout the city to consider! And he had ten bluejackets as his total force!

Of course we know that there are any number of persons who will inform one just what to do in such a case, but unfortunately they were not there, so this officer had to handle the situation alone. We still believe that wise old warrior would have approved the action of the youngster who managed to get his party out without the loss of a life.

Our Colored Frontispiece

The colored frontispiece in this issue is published by courtesy of the Class of 1926, U. S. Naval Academy. It first appeared in the 1926 "Lucky Bag" and is one of a series of five depicting the conquest of the sea from the "Days of Oars" to the "Days of Steam." A sixth is commemorative of the historical attempt of the *PN-9* to span the Pacific. Three others are of famous U. S. naval officers. These pictures are beautiful, when framed. Special copies on a fine grade of paper have been printed and, as soon as definite arrangements can be made, will be offered for sale, framed or unframed, singly or as many as desired.

Reducing the Air Load

On account of weight and space, the air navigator is limited in the amount of equipment he can carry. Precomputed data is all right when things go right. When the unexpected happens, real navigation begins. For the purpose of reducing the amount and size of equipment, the Naval Institute has just published Weem's *Line of Position Book*. This book is six by nine and one-half inches and contains about fifty pages. It can easily be carried in an average coat pocket. The *Line of Position Book* combines Ogura's *Altitude Tables* and Rust's *Modified Azimuth Diagram,* both of which are contained in the book. It is equally useful for air or surface navigation for latitudes up to 65°. Price, $2.50.

We have also brought out Rust's *Modified Azimuth Diagram,* mounted on heavy card board, handsomely bound in waterproof, imitation leather, and folding to a size eleven by nineteen inches. Anyone using this diagram will find it a vast improvement over the sheet paper type. Price eighty cents.

Stepping on a Pet Toe

In a recent news dispatch it was noted that the largest electrically-driven passenger steamer in the world had successfully passed her trials; that, in the boiler-rooms, three men move about adjusting pumps, etc., instead of the fifty men normally required. All of us know that we do not know how to run ships in the first place, that we haven't any ships anyway, and furthermore, we have no need for ships. We have been carefully instructed on these points by the foreign press. Nevertheless, the above ship was built in an American ship-yard for American ship-owners!

Possibly we are arriving at the solution for competing with cheap labor in overseas transportation. On shore our success has been attributed to highly paid labor. We have used machinery manned by fewer, but more highly paid men, to produce our manufactured articles which have successfully met foreign competition. If we can man our ships and operate them with fewer men than our competitors, we may be able to make ship operation a paying proposition. In that case our friends across the sea have reasons for discouraging an American merchant marine. It will step on their pet toe.

"I Remember Once, Etc."

We have all sat round the mess table on a quiet evening and listened to stories of the Navy and have been intensely interested and amused. But what ever becomes of these stories? They should not be lost to the service, for they build up a tradition. If the average person would write them up as they tell them, the tales would be well worth reading. The editor would appreciate receiving these yarns for the Secretary's Notes, for right now he sees troubles ahead of him. The last editor set a pretty high standard for his successor in the matter of Notes.

The Navy Is Like It Used to Be

Every once in awhile something happens to show us that the Navy is still doing big things. In the pressure of hard work, when things do not seem to go as well as they should, we sometimes feel that the Navy is not what it used to be. But it is. In an issue some time back, the *Saturday Evening Post* accused the Navy of failing to advertise itself. This is true, our accomplishments are accepted as what should be expected—only catastrophies are given publicity. All over the Seven Seas the Navy is doing big things and it should let the world know of them. Even in the dark pall of a catastrophe a light shines forth which shows the spirit of the Navy of yesterday and of the Navy of today and of tomorrow. Could anything be more sublime than the terse, businesslike conversations with the men in the doomed *S-4!* The spirit of those men was not built up in a day or a year—it is the result of years and years of training and of a tradition extending back to John Paul Jones.

Withdrawal of Destroyers

The service at large will note with regret the withdrawal of the division of destroyers from European waters. During the time that we have had this force in the Mediterranean, it has more than justified its existence. Witness the evacuation of the Greek refugees from Asia Minor and of the Russian refugees from the Black Sea ports. Moreover, this duty provides the service with a means of coming in contact with the European peoples and their problems. There was a time when foreign cruises were frequent and of considerable duration, but such is no longer the case. A working knowledge of the language and an understanding of the people helps considerably when an officer is called upon to make important decisions. These "ambassadors of good will" of long standing will be missed in the Mediterranean.

Distinguished Graduates in Civil Life

The Naval Academy has just reason to be proud when it marshals its graduates in civil life. The public at large and even we, ourselves, have never realized how the Navy has penetrated all walks of life. We have always known that we turned back into civil life each year thousands of trained men who are eagerly sought

by the trades. But the Naval Academy has graduated men into the business and professional world who have a nation-wide reputation. The distinguished graduate of this issue, Mr. F. J. Sprague, is reputed to have perfected the first electric motor while on a cruise to Europe and to have demonstrated it at the Crystal Palace, London, on his arrival on the other side. Mr. Sprague may be said to be the father of electric transportation.

A Little Coöperation, Please

Are you a member of the Naval Institute? If not, why not? Its PROCEEDINGS gives you a lot that concerns your profession and besides, is interesting reading. If you feel that you have no place to keep it, once you have read it, send it home. Or send it to your home-town library. You may be surprised at the interest you arouse. Invite your friends outside the service to become associate members. People want to know about the Navy and it is better for them to learn about us from ourselves. Another thing, the more that belong, the better will be the publication, for obvious reasons. Be an active member, be interested and interest others.

Effective Equality

In order to clear up any misunderstanding that might exist the London (England) *Times* comes forward to explain about the Washington Conference, 1921. The United States was granted the right to have an *effectively* equal Navy (not *mathematically* equal! Which all goes to prove that we do not understand the nice distinctions of the English language. We hope, under this new interpretation, we will be allowed to retain enough ships to enforce prohibition.

We may feel chagrined, but think of the Japanese problem when they try to determine what constitutes an effectively three-fifths Navy or a three-fifths effective Navy or a Navy three-fifths effective!

A Gigantic Hoax

The Russian sense of humor must be keen or else the Communist representatives at another Geneva convention must have thought the other delegates extremely gullible. Their proposal for total disarmament was about as much in order as a similar proposal might be from a gang of gunmen to the police. And yet there is evidence that some of our press believe that Europe repudiated the idea of partial disarmament by not accepting the Russian proposition. Europe is too old to believe in Santa Claus.

Lindbergh

The public's faith in Lindbergh was so great that there were few persons, if any, who had any misgivings as to the successful outcome of the flight to Mexico City and the subsequent ones to Central America.

To the naval officer his navigation and night flying by instruments during the long hours of darkness were of particular interest. His reasonings and decision, when temporarily losing his bearings in the vicinity of his destination on account of the low visibility, had a special appeal to, and sympathetic understanding of, the seaman.

Not since he set out from San Diego last May, for New York and Paris, has Lindbergh committed an error.

The Navy trusts that this record may never be marred.

"Vesuvius in Eruption," by Turner

One colored frontispiece we have in mind is entitled "Vesuvius in Eruption," by the great Turner, painted in 1818 and now in possession of Sir Robert A. Hadfield, Bart., F.R.S., head of the large English firm of Hadfield's, Limited.

At considerable expense, the owner has sent us an autochrome of his beautiful paint-

ing and we are now attempting to see if it is within the engraver's art to make a faithful reproduction of the wonderful colorings. If the answer is in the affirmative, the PROCEEDINGS will publish it.

Sir Robert Hadfield has been one of our number of limited foreign associate members for a great many years.

What interest this picture and its painter can have for our readers, is left for a future issue, and, as the financial papers say, "when, as, and if issued."

"Fore"

Golf is to be included in the physical education (voluntary) of the midshipmen. This will probably be the occasion for an outburst on the part of "column" writers. But in the next issue they will be extolling the virtues of Jones and Hagen, so that is nothing to worry about. Golf has gotten to be the national game, and is about the only exercise a naval officer can count upon wherever he goes. No doubt a great many enthusiasts will approve of this addition to the Navy's sports. Most of us, while learning golf, have outraged the feelings of those who knew the "etiquette" of the game. Let us learn while we are young that a ball is not lost 'till it has stopped rolling.

The Samoan Prints

The pictures of old Samoa, published in this issue by courtesy of Mrs. Llewella Pierce Churchill, are the last of the series that originally appeared in Mrs. Churchill's book, *Samoa 'Uma*. The PROCEEDINGS published others in a previous issue. We wish to express our appreciation to Mrs. Churchill for permitting us to publish these very beautiful pictures of early life in one of our Pacific Islands. The lure of the South Seas still exists.

The Samoan Disaster

The September, 1926, PROCEEDINGS featured Samoa and the Samoan disaster and the following letter has reached the Naval Institute through the courtesy of Mrs. B. F. Hutchinson. The letter is from Captain Culver to his mother and was given by her to the late Rear Admiral B. F. Hutchinson, U. S. Navy.

CONSULATE GENERAL OF THE UNITED STATES OF AMERICA
Apia, Samoa, Sunday, March 25, 1889

MY DEAREST MOTHER:

The experiences of the past week have been so horrible and are still so present in my mind that letter writing is no easy task. Long before this can reach you, you will know by our dispatches we have sent to Aukland and Sydney to be cabled, of the fate of our fine vessels and many of our men. I should have sent you a message on my own account, only I found the official dispatch left no room to doubt as to who were saved, and just then I was penniless, I did not know just where you were, and cabling is four dollars a word.

To look out on the bay today, calm and beautiful, one could never fancy all that happened just a week ago. Then there were six men-of-war and eight merchantmen at anchor in the harbor. Today there are only two vessels above water. Some of the smaller vessels went under the reef and have not even been seen.

A week ago Friday the wind began to strengthen and the barometer was down very low, all of the men-of-war in the harbor sent down yards and masts and got up steam, ready for a gale. During Friday night the wind increased. At 3:00 A.M. I was awakened by a huge sea which broke over the ship, coming down in the ward room and flood-

ing most of the state rooms. I had to go on watch at 4:00 A.M., so I rescued some dry clothes and went on deck. After four the gale became almost a hurricane. Great seas were breaking over the bows. We had steam up and three anchors down, but things began to look so doubtful that we called all hands. We waited, longing for daylight, and when it came the harbor was a grim sight indeed. Several of the merchantmen were broken to pieces upon the reefs, some had disappeared altogether. The German man-of-war *Adler* was high up on a reef, right over on her beam ends so that we could see her entire bottom. She lost twenty of her crew. The English man-of-war *Calliope* was swinging around to her chain, threatening us every minute with destruction. Several times her great ram bow came within ten feet of our side, but she had powerful engines and was wonderfully handled. Only once did she touch us—then fortunately aft; where she collided she cut off the after part of the stern like a knife, two boats going at the same time. Finally, her captain, finding that we should both be destroyed if we collided again, slipped all his chains, and under full steam stood out for sea. She just made headway with her powerful engines. We could not possibly have done so. In going out, the *Calliope* shaved the *Trenton* very closely. The *Trenton's* crew gave her a rousing cheer, and her captain said they heard it way down in their engine-room and it did more to spur them on than anything else could have done. While we were watching the *Calliope,* expecting to be sent to the bottom any minute, we saw the German man-of-war *Eber* heel over and turn bottom up. It was an awful sight. Only four of her crew of eighty-eight were saved.

Meanwhile we were dragging slowly down toward a dangerous reef. The German man-of-war *Olga* began to drag and swing around also. We had either to veer chain and strike the reef, or collide with the *Olga.* As the latter meant destruction, most likely, to both ships, we veered chain and dragged down against the reef. Our fires had been put out some time back by the water. Now began a horrible time. We swung around slowly and settled on the reef and in the sand, huge seas came over the side carrying away one boat after another, the ports, and finally the poop deck. Most of the men were very brave, some had on life preservers, but they were of very little use in that wind and sea, although we were within two hundred yards of the beach, the current was so tremendous that swimming ashore was next to impossible. I saw so many try it, and either go down or be carried out to sea. It was a fearful sight to see all those people drowning and yet not be able to help them. I urged everyone about me to stick to the ship until the last minute, but the shore looked so near and the good swimmers were so confident in their own strength that some tried it. A few reached the shore, and a few the *Nipsic.* She had run up on the sand inside of us, and all her crew, with the exception of seven who were drowned, got ashore. At one time her stern swung very near us. Some of our men got on board her, gave us a line, and then we hauled a hawser on board. A few gained the *Nipsic* by this hawser, but she soon swung off again, the hawser was jerked like a whip and several men who were clinging to it were thrown into the sea. All this time we were slowly sinking. About four in the afternoon we had to take refuge in the rigging. Many of the crew were perfectly naked and most of us had on the smallest amount of clothing possible, not knowing at what moment we might have to take to the water. Our only hope was that the masts would stand, and somehow I felt they would. I shall never forget those many hours that some one hundred and fifty of us spent clinging to the rigging, shivering with cold, with death staring us in the face. We saw some of our officers and men who were too weak to hold on any longer

swept overboard and go down. The captain was among the first to be carried away. He had been thrown down early in the morning and his head cut, and as he had been up all night, he must have been very weak. We could see hundreds of natives running along the beach, but they could do nothing. I saw several corpses dragged out of the water and carried away on biers. Just below us two men with life preservers on were being dashed around against the masts. They had been dead some time. It seems dreadful to say, but amidst all these horrors I saw many things that struck me as ludicrous. I don't think once I felt any special fear, and the thought kept coming to me, that after all I might soon get home again.

The fellows of the *Nipsic* say that the sight of the rigging—the only part of the ship visible above water—filled with half-naked men, many of them their friends, was a most terrible sight as darkness crept on. There they were safe on shore, but wind, sea and current were too much for them. They were powerless to aid, darkness came on, and there we were. It seemed as though our only chance was to wait until the gale abated, if we could keep up our strength. We had been then over thirty hours without food; and dripping wet. We had had so many battles to hold our own against the sea while on deck, that we were none too strong. I remember one sea came over the bows and carried me twenty feet before I could grasp anything. A little before midnight, my first love, the *Trenton,* was seen to be dragging down upon us. We have since found out that the sea carried away her hawse bucklers and put out her fires early in the day. Two of her immense chain cables had parted, and she was coming down upon us as she had nothing to hold her. Most fortunately for us she grounded slightly before she touched us. By means of a rocket she got lines over to us on the main and mizzenmasts. I was up in the fore rigging and could see those aft getting over to the *Trenton* on the hawser. The *Trenton* then let go her last cable, swung nearer to us forward, threw us a line, and we began crossing over to her, hand-over-hand on the hawser. It was then I had my most narrow escape, for I was all tired out, a man came down on my hands and I had to let go, holding on simply with my legs. Somehow I managed to slide a few feet further and they got hold of my foot and dragged me in board. I thought I was going in the water, but did not care much. On board the *Trenton* we got blankets and something to eat. She was well out of water, but all night long she was grinding against the reef and the sunken hull of the *Vandalia* and we felt that she must eventually sink. Just after our men had gotten from the after rigging to the *Trenton,* she collided with the *Vandalia* and the main and mizzenmasts went over the side. They were saved just in time.

At daylight Sunday the wind and sea began to go down and by ten o'clock a "native boat" got off and we began to abandon ship. During the day all of the *Vandalia's* and *Trenton's* crews got ashore. The men were quartered in some storehouses and we found quarters around among the townspeople. Of course we brought nothing with us, the *Vandalia* people, so we went right up to the "Yankee notion store" and each fellow bought an outfit of a suit of ready-made clothes, a flannel shirt, two towels, a straw hat, a tooth brush, and a jar of tooth wash. Gibbons and I found a very comfortable room overlooking the sea. The *Trenton's* crew are working every day bringing things ashore. We have secured two matresses and camp out on the floor.

Today the foremast only of the *Vandalia* is visible; the *Trenton* is half underwater and is a total wreck. Yesterday all hands went on board of the *Nipsic,* the King sent down a good many of his men, and they have hauled her off the sand. She will be convoyed to Sidney probably, and will be the only one of our vessels saved. The Germans have the *Olga* up on the sand, and she may be saved also. Imagine five men-of-war gone to the bottom. Nothing like it has been known of in this century.

Every day the sea washes up its dead, four more today. At first the bodies were all coffined and decently buried. Now it is impossible, they have been in the water so long and some of them come up miles away. Our captain, paymaster and pay clerk have all been found. Sutton (of Rome) has not been found, or at least not recognized.

This morning we had a memorial and a Thanksgiving service. Five hundred of our men were present. We have military possession of one part of Apia, the Germans of the other. Sentries are posted everywhere, all saloons have been closed and the discipline is now very good.

The officers are quartered around in different places, and under the circumstances are very comfortable. The *Trenton's* band plays every afternoon and the natives come to hear it by the hundreds. The events of last week seem already like some horrible nightmare. I know this letter will sound like some blood curdling novel, but it is all true and it must do for you all. I have a long official report to make and one letter must suffice. I had letters written to you all, ready for next week's mail, but they went down in the *Vandalia*. Please tell Louise Graham I had a letter for her, to tell her of my sympathy, but that went down also. During the past few days native divers have been at work, but we lost practically everything. All my photographs, letters and gifts I value so much are gone. Strange to say they brought up my watch. Though all the cases were closed it was full of sand and rust. But we are thankful to have our lives. Forty-three of *our* crew alone, have gone. If they had all only clung to the ship, only those would have been lost that were washed overboard, perhaps twelve in all.

We have sent an officer to Auckland with dispatches and with authority to try and charter a steamer to take us to San Francisco. We may possibly be able to leave within a few weeks. Of course there will be a court of inquiry, and we shall all be needed as witnesses. How long that will take and what duty will follow, of course I cannot tell. That all my hopes will be centered eastward and near the dear ones at home it is needless to say.

Now that all this is over, I hope that the fact that one you love so well has been in so much peril, all that I have written too, will not harrow up your feelings, I know that you will see it all in the newspapers, and I write everything so you can have my own account. Give my truest love to Minnie, Katharine, and the rest. I think after great dangers, family ties and love seem stronger than ever.

Many of our men are very ill, some with wounds, some with fever. I cannot be too thankful that I am well, only somewhat fagged out and worn down.

I cannot help wondering what effect all this will have upon the "Samoan Question." It should teach somebody a lesson. The beach, as far as the eye can see is one mass of wreckage. Half the natives have appeared with some portion of a sailor's uniform, in addition to their own scanty apparel. You cannot help laughing at their absurd appearances, and they strut around proud as turkey cocks. Most of us go around in pajamas, and right comfortable they are in this tropical heat.

And now my dearest, I wonder where you are and how you are. I hope when the cable message is published, you will not worry. I read it over and thought it very plain, but I know there must always be some anxiety in a case like this. Had I been certain of your whereabouts I should certainly have raked up some money and cabled. How I long to see you no one knows. The mail is due in two days, and I must get letters from you all. Good-bye, dearest. Perhaps you will hear next from me at San Francisco.

Yours lovingly,

ELLIS